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Traditional and Nontraditional Female Achievers: Factors Which May Account for Divergent Modes of Expression of Achievement Motivation

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TRADITIONAL AND NONTRADITIONAL FEMALE ACHIEVERS: FACTORS WHICH MAY ACCOUNT FOR DIVERGENT MODES OF EXPRESSION OF ACHIEVEMENT MOTIVATION

by

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VITA

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CHAPTER I

SPARSITY OF NONTRADITIONAL FEMALE ACHIEVERS: AN INTRODUCTION TO THE PROBLEM

Equality of women has emerged as a topic of serious concern in the last decade. The Federal Government has scrutinized large corporations to help insure women equal opportunities for being hired and promoted. The Equal Rights Amendment, if passed, will attempt to secure equality for women as dictated by the highest law in the United States.

Women are becoming increasingly visible in what once were "male only" occupations. Women have become commercial airline pilots, policewomen, telephone pole climbers, astronauts, elected government officals and United States Cabinet appointees. Women have begun to do physically demanding labor as mine workers, dock workers, and factory workers ("The hardships that blue-collar women face," 1978).

Barriers which historically had prevented women from being hired for certain jobs seemingly have been broken down. However, within the United States, as in other societies, males occupy the most prestigious occupations in far greater numbers than women. Women who work are concentrated in the "pink collar" occupations: secretary, typist, clerical worker, retail saleswoman, private household worker, elementary school teacher, bookkeeper, waitress, and nurse. While many men are in low level or "blue collar" occupations, they are still represented in far greater numbers than are women in the top echelons of businesses and

professions. Women represent only small proportions of physicians, dentists (10.6%), or engineers (2.6%) (U.S. Bureau of Census, 1978). There are few women in government offices. The only two women recently serving in the U.S. Senate replaced their husbands; only 18 per cent of the 435 members of the U.S. House of representatives are women; no woman has yet been appointed to the U.S. Supreme Court; only 6 of the 525 active federal judges are women; only 2 of 50 state governors are women ("Women in office," 1978).

According to a recent survey in Fortune magazine (Robertson, 1978), only 10 of 6400 officers and directors of 1300 major United States companies are women -- one less than had been reported 5 years earlier. Only 3 of the 10 highest ranking women in big business worked their way up without family connections.

In addition to meager representation in higher status occupations, females' earnings are considerably lower than males'. For full time workers in 1976, median income for men was $13,860 but only $8,310 for women (U.S. Bureau of the Census, 1978). Even when other things are equal, such as age, education, experience, skill, and length of time on the job, women earn only 58 per cent of what men do (Levitin, Quinn, & Staines, 1973; Treiman & Terrell, 1975).

Women also lag behind men in achievement in graduate and professional degrees. Only 13 per cent of the doctorates awarded in 1969-70 were earned by women, a low level of achievement for a group that accounts for over half of the population (Roby, 1973).

Legally, women are now supposed to have opportunities for achievement equal to men's. Nonetheless, they are not yet equal in terms of occupational status, prestige, or pay. What factors might account for women's lower achievement, particularly occupational achievement? Discrimination may be an important factor, but it is often difficult to substantiate.

It has also been suggested that women do not have time to pursue careers outside of the home (Hoffman, 1972). According to most Americans, both men and women, housework is considered the woman's responsibility (Osmand & Martin, 1975). Women spend more time with their children than do men in most countries with the exception of the Soviet Union (Stone, 1972). Because women are engaged with homemaking, housework, and child care, it has been reasoned that they do not have time to invest in a career. However, a large scale national probability survey of 1522 women, conducted at the end of 1975, showed that over two out of five women (42 per cent) were employed on the day the interviewer called (Bryant, 1977). Many women clearly do find time to work outside the home.

It has further been argued that many women may not succeed occupationally because they regard their jobs as "just jobs" rather than as "careers." A survey of working women determined that only about 30 per cent referred to their occupations as "careers" (Bartos, 1977). Moreover, a study of senior level female business executives discovered that these "successful" women typically made a conscious commitment to a "career" only after working approximately 10 years (Hennig & Jardim, 1977). Of

course, it might be argued that, in general, women's work has been more routine, more boring, and less challenging than men's work. Monotonous tasks might better fit a "just jobs" description than would more varied and stimulating work.

If one accepted the reasoning that women characteristically regard their occupations as nine-to-five tasks, rather than as careers, one might conclude that women simply are not achievement oriented. If women lack adequate achievement motivation, that might account for their meager representation in higher status occupations.

The next chapter reviews evidence concerning the achievement motive in women, as well as evidence of other factors which might be construed as possible reasons why women may not have greater representation in a wide range of careers. It examines literature on: female achievement motivation; situational variables which may inhibit expression of the achievement motive; female intellectual and academic ability; Horner's fear of success theory; the attribution of female success to luck; and female self-esteem and self-confidence.

Given the nature of the foregoing problem, locating reasons which may account for scarce female representation in occupational areas not traditionally feminine, the current study focused on achievement among women, generally to the exclusion of achievement motivation among men. Nonetheless, it should be noted that many potential inhibitors to female achievement might also pose barriers to male achievement. For example, some men may be engaged in boring, unchallenging work to which they may find it difficult to commit their full range of talents and

energy. Although this problem and others are recognized, they are generally not reported here due to the limitation of the current study's scope to the expression of female achievement motivation; specifically, factors which may account for divergent expression of the disposition. The current research does not purport to examine factors which may mediate expression of male achievement motivation, even if parallel factors might exist.

CHAPTER II

REVIEW OF THE LITERATURE

Female Need for Achievement

A comprehensive review of over 30 studies (Maccoby & Jacklin, 1974) failed to find consistent sex differences on most measures of achievement motivation. Females have exhibited as high and sometimes higher levels of achievement motivation than men.

Researchers seemed more interested in studying the achievement motive in men than in women during most of the '50s and the '60s. Their lack of interest may have been related to the fact that women did not respond to experimental manipulations of n Ach (as measured by McClelland, Atkinson, Clark, & Lowell, 1953) in the same way as did men. For example, when experimental instructions referred to Thematic Apperception Tests (TAT), (Murray, 1938) as tasks which are indicative of intelligence and leadership ability, men exhibited increases in n Ach scores but women did not. The women exhibited the same levels of n Ach under the achievement oriented instructions as they had under neutral or task-related instructions (Alper & Greenberger, 1967; Veroff, Wilcox, & Atkinson, 1953). It may be that women had already construed the tasks as measures of some important attributes, in which case they may have been achievement oriented even in the absence of the experimental instruction stressing intelligence and leadership ability. Or perhaps the emphasis on leadership ability and intelligence was not a salient source of arousal for female n Ach. Women who have been socialized to regard leaders as male

may not have perceived instructions which stress leadership qualities as personally relevant. Therefore, it was not the level of expressed achievement motivation which differed between the sexes, but the way in which their n Ach levels changed in response to experimental manipulation. McClelland et al. (1953) considered the possibility that females' achievement motivation is triggered by the need for affiliation whereas males' n Ach is not predicated on the affiliative need. This may have led many researchers to exclude female subjects from their studies of the achievement motive. Although the affiliative need did not prove to be consistently capable of heightening females' n Ach levels (Atkinson, 1958), researchers continued to base their studies on males.

Only recently has interest been rekindled in female achievement motivation. Again, few sex differences in the level of motive are reported. One recent study determined that females who aspire to higher education are similar to their male counterparts on a nonprojective measure of achievement motivation, the Work and Family Orientation Questionnaire (Spence & Helmreich, 1978).

In order to understand the relative strength of the achievement motive in women compared to men and why women might respond differently than men to instructional sets, it is necessary to explore in some detail the methods which have been used to measure n Ach.

Measuring n Ach

In the past, most studies utilized a projective measure, usually Murray's Thematic Apperception Test (Murray, 1938), to tap achievement motivation. Utilization of the TAT rather than an objective measure may have stemmed from a belief that achievement motivation is a

subconscious disposition best elicited through free association to pictorial stimuli. Moreover, researchers may have preferred a projective measure because it does not provide subjects with responses, some of which may appear more socially desirable than others.

TAT measures are influenced by a variety of factors. Different pictures elicit varying amounts of motivational imagery. An individual's past experience in settings similar to the pictorial ones has been determined to be a factor in the amount of motivational imagery elicited (Veroff, Atkinson, Feld, & Gurin, 1960). Using men or women as central figures in the TAT had a significant interactive effect with female storytellers' evinced tendencies for over- or under-achievement and with their traditional versus nontraditional female sex-role orientation.

With regard to the interaction of the disposition to achieve and sex of the central stimulus figure, Lesser, Krawitz, and Packard (1963) reported high achieving secondary school girls exhibited elevated achievement scores under an achievement-oriented instructional set which was only when the central stimulus person was male. Low achieving girls displayed elevated achievement scores under the same conditions when the stimulus person was female. Subsequently, French and Lesser (1964) found college women's achievement scores were always higher when the stimulus person was male. Alper (1974) examined the interactive effect of traditional and nontraditional role-orientation and sex of the central figure in the TAT on female's success stories. When a male and female stimulus figure were portrayed together, traditional role-oriented women typically attributed successful achievement to the male rather

than to the female figure. Nontraditional role-oriented women often attributed achievement to both characters or to the woman alone. In other research, Alper (1974) discovered nontraditional role-oriented women told more success stories for a central stimulus figure watching a male stimulus figure than did traditional role-oriented women. Descriptions of the central character as either married or single also generated large differences in TAT imagery (Spence & Helmreich, 1978).

Verbose respondents (Moore, cited in Condry & Dyer, 1976) were more likely to include various aspects of success in their TAT stories than those who were more succinct. Therefore, it seems that the longer the story, the greater the probability that it may include a success thema.

Apart from the possible influence of factors such as these, the TAT's usefulness as a measure of achievement motivation is diminished because it is neither simple to administer nor to score. Moreover, scoring systems have usually been based on male responses. Several investigators of female achievement motivation have abandoned the McClelland, et al. (1953) scoring system in favor of a more clinically oriented system, a theme analysis (Alper, 1974; Horner, 1968). Many avenues of female achievement may not be adequately represented in TAT coding systems. Women who have been socialized in a traditionally feminine manner may perceive certain TAT situations as appropriate for male rather than female achievement.

Investigators have concluded that there is some evidence for the validity of projective measures of the disposition to achieve; however,

it is based on rather modest relationships. They have also concluded that evidence supports the existence of stable individual differences in achievement motivation (Spence & Helmreich, 1978). Others were less convinced as to the predictive validity of such measures (Klinger, 1966; Smith, 1968). Further, researchers have noted problems of replicating studies using projective measures of achievement motivation (Entwisle, 1972; Katz, 1967; Weinstein, 1969). Entwisle reports the test-retest reliability of the TAT as only in the range of .30 to .40.

A Multidimensional Objective Measure of Achievement Motivation

The TAT measures of need for achievement report the motive in a single score, but there may be several dimensions which comprise the disposition to achieve. One approach to success may be to rely on steady, hard work. Another may be a competitive stance. Yet another may be a proclivity to engage in difficult, challenging endeavors. Insensitivity to others' reactions to one's personal success may also be an asset in achievement. An objective measure which encompasses these dimensions of achievement motivation has been devised by Spence and Helmreich (1978).

Spence and Helmreich's Work and Family Orientation questionnaire is an objective measure which conceptualizes and reports achievement motivation as a multidimensional rather than a unitary construct, and has been found to have good predictive validity for real life achievement behavior. It was administered to samples of male and female students at both the high school and college level, to male and female scientists, and to female varsity athletes. The four scales, Work

Orientation, Mastery, Competitiveness, and Personal Unconcern, had good predictive capability among these samples.

High Work and Mastery, in conjunction with low Competitiveness scores were predictive of numerous citations for publications among scientists, of high grade-point averages (corrected for the influence of aptitude) among college students, and of high income among male business school graduates. Among those low in Work and Mastery, the more competitive had successful performances. Spence and Helmreich concluded that the most successful achievement formula is comprised of a strong need to live up to internally imposed standards of excellence plus a willingness to work hard, and only a moderate desire to be better than others.

Moreover, because the Work and Family Orientation Questionnaire is a psychometric measure, it is not subject to some of the factors which influence TAT stories, (e.g., the way the marital status of the character pictured affects the nature of the stories). Rather than relying on the stimuli in the TAT's pictorial setting to generate success imagery in subjects' stories, the Work and Family Orientation questionnaire utilizes items on which subjects describe themselves directly. Successful utiliziation of the latter measure does, of course, depend on subjects' ability to read and to understand what is read.

Sparsity of Data on Adult Females' Achievement Motivation

Few studies have reported data on achievement motivation among adult women and most of these studies have used samples from college populations. Some have tapped high school populations. Spence and

Helmreich (1978) have noted the problems which such restricted sampling might present, for example, the limited generalizability of the data. O'Leary (1974), in reviewing studies pertinent to a discussion of attitudinal barriers to female occupational aspirations, decried the frequent use of college samples. In studying achievement factors, Spence and Helmreich (1978) broadened their data base by sampling public high school students and adult scientists; however, only 18 of the 161 scientists studied were women. In their research on achievement motivation, they found significant differences in some dimensions of the motive as a function of social class. It seems equally plausible that age might mediate the motive. One of the few studies to utilize samples of adult females (Baruch, 1967) suggested that achievement motivation among women varies temporally. The inclusion of adult women as subjects in future research on achievement motivation would expand the scope of the literature on the topic. In studying other variables, for example, sex-role orientation and self-confidence, it would also be informative to utilize samples of adult women rather than students because perceptions of sex roles, and even personal self-confidence may also undergo changes as women mature, marry, manage households and/or careers.

Potential Mediators of Expression of Female Achievement Motivation

Intellectual and academic ability. There is evidence that females not only score as high as males on most measures of general intelligence, but studies show that most females compile better academic records than males prior to entering college, given the same ability levels for both sexes (Spence & Helmreich, 1978). The available evidence argues against

the possibility that general intelligence (as measured by psychologists) or precollege academic achievement may be responsible for sex differences in real life occupational success. Maccoby and Jacklin's review of the literature (1974) found no consistent differences between the sexes on most measures of general intellectual abilities. These authors did point out, though, that a major issue in determining whether a given study finds a sex difference is the nature of the items included on a test. Some tests have been standardized to minimize sex differences; others have not. But most balanced tests have not shown significant differences between the sexes in expressed levels of achievement motivation.

Situational variables. Atkinson (1974) states that the strength of the tendency to achieve success (Ts), which is expressed by an individual in task interest and task performance, is a multiplicative function of three variables: motive to achieve success (Ms), a relatively general and stable disposition of personality; and two other variables which represent the effect of the immediate environment, the strength of expectancy (or subjective probability) that performance of a task will be followed by success (Ps) and the relative attractiveness of success at that particular activity, which is called the incentive value of success (Is); or in Atkinson's formula, Ts = Ms x Ps x Is. The environmental variables, expected consequences of achievement, and the incentive value of these expectations may lower females' overall tendency to achieve success when the achievement area is traditionally male.

With regard to the first environmental variable (Ps), women may observe that few women have been rewarded with success in male achievement

areas, and therefore may conclude that personal endeavors in male achievement areas are unlikely to be rewarded. Research has demonstrated that males tend to assign lower starting salaries to female than to male job candidates when the qualifications of the persons are commensurate. This type of discrimination was shown by male undergraduates (Terborg & Ilgen, 1975) and by psychology department chairpersons (Fidell, 1970). Males in those studies did not appear less willing to hire females than males, but most other studies have shown men consistently evaluate female job applicants lower than male job applicants when the qualifications of the two are similar or identical.

Research has found that male professional interviewers and male undergraduates evaluated females' job resumes less favorably than males' when the two resumes were identical except for stated gender of the applicant (Dipboye, Fromkin, & Wiback, 1975). College students expressed less willingness to hire female than male applicants (Dipboye, Arvey, & Terpstra, 1977). Further, personnel directors responded less often and less positively to female applicants than to male applicants (Zikmund, Hitt, & Pickens, 1978). Managers gave males significantly higher recommendations than females for being hired when all applicants were described as disadvantaged (Haefner, 1977a). Perhaps the jobs being applied for in the foregoing studies might be considered traditionally male; for example, a furniture department manager, a management-trainee for sales, and an accounting position. If so, the sex incongruency of occupation and applicant may have lowered ratings of females. Other research indicates females receive significantly lower evaluations than

males in traditional male occupations, for example, managerial positions, or where the work itself is challenging or demanding (Cash, Gillen, & Burns, 1977; Cohen & Bunker, 1975; Feather, 1975; Feather & Simon, 1975; Rosen & Jerdee, 1974b; Schein, 1975; Shaw, 1972). Although the same literature shows evaluations of male applicants are also influenced by sex congruency of the occupation, differential evaluations may have more detrimental consequences for females, many of whom may be barred from many traditional male occupations offering high status and pay. However, there is even some evidence (Rosen & Jerdee, 1974a) that females are rated lower overall than males for jobs described as routine as well as those defined as demanding. Thus women may conclude that they are not only less likely to be rewarded for performance within an occupation, but are less likely to be employed than men in specific occupations.

Not all studies, however, found unfair discrimination against female job candidates. In evaluating resumes of exceptionally well qualified applicants for managerial positions, male and female graduate students did not differentially evaluate men and women (Renwick & Tosi, 1978). One study by Muchinsky and Harris (1977) found college students rating female job applicants higher than males; and another study by Kryger and Shikiar (1978) observed personnel managers were more willing to interview female than male applicants on the basis of letters of recommendation. With regard to the latter finding, it is noted the granting of an interview is not necessarily congruent with hiring of or pay level of the applicants. On balance, evidence indicates females are discriminated against in the job interview, and also in the level of starting salary.

In general, female interviewers as well as male interviewers have been observed to evaluate female applicants less favorably than male applicants (Dipboye, et al., 1975; Dipboye, et al., 1977); but female interviewers were more favorable than male interviewers in ratings of all job applicants (Muchinsky & Harris, 1977; Rose & Andiappen, 1978). One study, however, failed to find any significant differences in applicant ratings by sex of the interviewer (Renwick & Tosi, 1978).

It is possible that in the future some of the discriminatory practices against hiring of women for nontraditionally feminine positions may diminish. A recent review of the literature on the integration of women into management reports that women seem to be given increasing opportunities (Terborg, 1977). Nonetheless, the review cited evidence that both overt and subtler forms of discrimination continue to be reported. Therefore, women may evaluate their current marketability relative to men for certain occupations, and may conclude the environment is less likely to admit them or reward them in certain occupational areas.

With respect to the second environmental variable (Is), the relative attractiveness of success in traditionally male achievement areas may be low for females. A woman may anticipate that a male with whom she is romantically linked will lose interest or become hostile if "bested" by her in competition. Peplau (1976) noted that among dating couples, some men feared being outdone by their girlfriends in competitive situations and preferred to work alone rather than with the girlfriends. A woman may fear being left alone by her romantic partner as the result of her

success in competing against males. She may also anticipate negative reactions to her success from others. The latter may be due to the way in which the culture has generally viewed out-of-sex-role success (Condry & Dyer, 1976; Helmreich & Spence, 1978; Monahan, Kuhn & Shaver, 1974; Spence, 1974; Zuckerman & Wheeler, 1975).

Women's expectations of hostile male reaction to female success is substantiated by research findings. These data show that men write more negative consequences concerning female out-of-sex-role success on projective measures than do the females themselves (Alper, 1974; Feather & Raphaelson, 1974; Robbins & Robbins, 1973). Perhaps men's stories reflect personal observations of real life consequences to female out-of-sex-role occupational success. For example, they may be cognizant men do not always welcome women as coworkers. This was exemplified by a survey of company executives. The male executives' attitudes toward female executives were only lukewarm, mildly favorable to mildly unfavorable. In contrast, their female counterparts' attitudes toward male executives were strongly favorable (Bowman, Wortney, & Greyser, 1965).

Another possibility is that men's stories reflect their personal attitudes toward female occupational strivings. They may intellectually approve of women working but may not wish to personally affiliate with successful women. Employees of the State of Illinois, 64 per cent of whom were male, were asked their degree of willingness to work with highly competent females or highly competent males. The employees indicated a clear preference for highly competent males (Haefner, 1977b). In contrast, the females indicated that they would prefer working with the highly competent females. The author suggested the females' preferences

may be the result of past discriminatory behavior on the part of the males. Moreover, college men, who professed high esteem for working women, nonetheless, themselves stated a preference for a "traditional" wife, a homemaker (Komarovsky, 1973).

The studies generate the impression that men have high regard for the quality of success in females in the abstract and believe success engenders personal sacrifices and negative consequences for the successful woman. The men's attitudes ensure the negative consequences; they don't want to marry nor like working with the successful female.

The female striving for success could expect scant support from the types of males who participated in the foregoing studies. Neither should she hope to receive support from females who have succeeded. Successful females have often opposed advancement for females in general (Staines, Tavris, & Jayarative, 1974). Women who had garnered a top position may have experienced apprehension about the possibility of losing the job to another female striving for success. If these successful women perceive a type of quota system for female achievement in their occupational area, they may attempt to block other females' efforts to attain access to the scarce resources. Thus, many women may anticipate having to endure negative male and female reaction to their strivings for success in occupational areas where men predominate. In order to lessen the negative environmental consequences to their success, many women may choose to express their motive to achieve success (Ms) in achievement areas which are in-sex role.

Fear of Success

In an attempt to account for women's lower incidence of success relative to men in certain occupations, Horner (1972) posited a disposition, fear of success. According to Horner, women may fear success in traditionally male fields because they anticipate the success may be accompanied by social rejection, or may be indicative of a personal lack of femininity. To measure fear of success, Horner administered a projective measure to University of Michigan students. Female undergraduates were presented with the stimulus, "After first term finals, Anne finds herself at the top of her medical school class." In response to this stimulus, 65 per cent of the female undergraduates generated avoidance of success themes in their stories. When the central character in the stimulus statement was male, "John," presented to male undergraduates, only 9 per cent of the men's themes reflected fear of success. The difference was significant. An attempt to exactly replicate Horner's study found the male undergraduates showed more fear of success imagery than the female undergraduates (Hoffman, cited in Condry & Dyer, 1976). In fact, a review of 22 studies (Tresemer, 1974) found that fear of success was more prevalent among men than among women although the men's median rate of fear of success was not higher than women's. Another review of the fear of success literature (Zuckerman & Wheeler, 1975) reported only 9 of 16 studies supported the idea that fear of success is more common among women than among men.

Horner suggested that women who experience fear of success are those intelligent, ambitious women who have chosen to compete in traditionally male areas. However, elsewhere in the literature (Alper,

1974; O'Leary & Hammack, 1975) it was reported that traditional sex-role oriented women exhibited more fear of success than did nontraditional sex-role oriented women.

These findings suggested that fear of success may not be distinct from sex-role orientation. Research which investigated the effects of fear of success, and sex-role attitudes on female performance (Peplau, 1976) failed to find a correlation between the two; and further, showed that sex-role attitudes appear to have greater impact than fear of success on women's achievement both in the laboratory and in real life.

Clearly, the disposition, fear of success, has not proven to be an important predicter of differences in women's performance. The fault, however, could possibly lie in the measure itself. Condry and Dyer's (1976) comprehensive review of the literature found meager support for the reliability of the projective measure. It is also possible that growing publicity about the stimulus cue (Peplau, 1976) and the measure may influence research findings. A nonprojective measure which probes subjects' expectations of negative reactions on the part of others to their success has recently been designed; it is the Personal Unconcern Scale of the Work and Family Orientation Questionnaire (Spence & Helmreich, 1978). Research using the Personal Unconcern Scale indicated that female scientists who hold doctorate degrees and college women with low educational aspirations both exhibited low levels of concern that others might not like them for their success. It was suggested (Spence & Helmreich, 1978) that women with a low need for achievement may not expect that their success would be capable of arousing envy in others,

and that the female scientists may be insensitive to others' opinions about their success in nontraditional achievement areas. These data raise the possibility that among women with a high level of achievement motivation, nontraditionals may have less concern about others' negative reactions to their success than do traditionals.

Female success: attributed to luck or to competence? The literature indicates that individuals generally make internal attributions for success and external attributions for failure on tasks (Luginbuhl, Crowe, & Kahan, 1975; Miller, 1976; Miller & Ross, 1975; Sobel, 1974; Stevens & Jones, 1976; Streufert & Streufert, 1969), a pattern heightened by ego-involvement with the task (Miller, 1976). Depressed female undergraduates, however, deviated from the pattern by having made internal attributions for failure (Kulper, 1978). Nonetheless, the pattern appears consistent among normal persons. Being debated is the issue of whether these attributions are motivational "self-serving" biases for protecting or enhancing one's ego (Bradley, 1978; Snyder, Stephan, & Rosenfield, 1976) or whether the attributions can as easily be interpreted within a rational, information-processing framework (Miller, 1976; Miller & Ross, 1975).

Irrespective of the underlying dynamics of the attributions, sex differences in attributions have been reported. In a number of studies (Feather, 1969; Feather & Simon, 1973; Nicholls, 1975) females took less personal responsibility for success than did males, more often attributing their success to luck, rather than to skill or effort. Two studies (Feather & Simon, 1973; Nicholls, 1975) also found that females blamed

themselves more for failure than did males, but another study (Feather, 1969), found the opposite, that females blamed themselves less for failure than did males. A recent study (Stephan, Rosenfield, & Stephan, 1976) evaluated male and female attributions for success and failure at a competitive game. Results showed males took more personal credit for success than they allowed their successful opponents, and blamed themselves less for failure than they blamed their opponents, irrespective of the sex of the opponent. On the other hand, females followed this attributional pattern only when competing against other females, not when competing against men. Females appear to have low expectancies of personal success (Battle, 1966; Crandall, 1969; Deaux & Emswiller, 1973; Feather & Simon, 1973; Feldman-Summers & Kiesler, 1974; Montanelli & Hill, 1969; Rychlak & Eacker, 1962; Stein, 1971) and may also feel it best not to be egotistical by taking personal credit for their success in competition with males.

Not only the actors but also observers have tended to give males more personal credit for success than females (Stephan et al, 1976). Observers were found to attribute the success of males to skill but the success of females to luck when the task was male (Deaux & Emswiller, 1973). Another study reported similar findings for the attribution of success by males and females, but indicated that observers made more internal attributions for failure to male performers than to female performers (Deaux & Taynor, 1973). Overall it seems that observers and the actors themselves may view males as more in control of their successful outcomes than females. Women may not view their abilities and efforts

as being potent factors in success. On the other hand, the evidence is inconclusive but often indicates observers and actors attribute blame to females more often than to males for failure. Perhaps those females who attribute failure to their own lack of ability or effort may suffer from depression, or low self-esteem which has often been cited as a prominent feature of depression (Kulper, 1978).

Self-Esteem and Self-Confidence

With regard to self-esteem, Maccoby and Jacklin's (1974) comprehensive review concluded that females' overall self-esteem did not differ significantly from males'. Helmreich, Stapp, and Erwin's (1974) research findings suggest no reliable sex differences in self-esteem. However, Helmreich (1977) argued that the failure to find such differences in self-esteem may stem from social comparison processes. That is, individuals may tend to employ peers of the same sex and social background as standards against which they evaluate their own competence. The lack of such differences in self-esteem may also be an artifact of sampling. Most research has utilized student populations. In school, both sexes partake in activities which gain recognition for the participants. Recognition may heighten a sense of self-esteem.

Feree (1976) reported that self-esteem was higher among working-class women who were employed than among those who were not. Their self-esteem may have been enhanced by recognition, money, and a sense of accomplishment. Other researchers and theoreticians have suggested that many women, especially homemakers, may experience a decline in self-esteem during midlife (Birnbaum, 1975; Gurin, Veroff, & Feld, 1960;

Rossi, 1968). It is speculated that the decline in female self-esteem occurs when the children leave home or when the husband is gone (through divorce, separation or death). Self-esteem seems linked to societal and self-perceptions of accomplishment both outside and within the home.

If recognition of accomplishments heightens self-esteem, then men may have higher self-esteem than women because some studies have indicated that women's work is not rated as highly as men's work. Women's work has been judged to be of lower quality than men's, even when the work was done by the same person, but merely labeled with a male or a female name. The devaluation of female performance was found for professional articles, artistic works, and academic credentials (Bem & Bem, 1970; Deaux & Taynor, 1973; Goldberg, 1968; Pheterson, Kiesler & Goldberg, 1971). This devaluation of female achievement was found for female as well as male judges. Moreover, ratings of the prestige and desirability of particular occupations decreased when larger proportions of women were said to be entering. In contrast, the value of certain occupations seemed enhanced by the promise of increased male participation in them (Touhey, 1974a, 1974b). The relatively large number of women entering the medical profession in Russia (70 to 80 per cent) compared to the number entering in the U.S. (6.7 per cent) may account for the lower prestige of the physician in the U.S.S.R. (Bowers, 1966). It seems reasonable to assume that when one's work is considered second class, one might experience lower self-esteem.

Not only is there a societal bias against recognition of female achievement, there is also a tendency not to value stereotypic "feminine"

characteristics (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Fidell, 1970). Women have been perceived to be less competent, less independent, less objective, and less logical than men. Children's prejudice against female traits increases as the children grow older (Prather, 1971; Smith, 1939), so that both sexes regard males as superior or preferable to females (Broverman, Broverman, Clarkson, Rosenkrantz & Vogel, 1970; Sheriffs & Jarrett, 1953).

In light of the disparagement of female traits, female accomplishments and female occupational areas, it seems probable that women would have lower self-esteem than men, Maccoby and Jacklin's (1974) review of the literature notwithstanding. It would therefore seem equally probable that females would feel less confident about their performance in achievement settings than men.

Underestimation of Ability and Performance

Women have generally been found to expect to perform less well, to evaluate their abilities less well, and to judge their completed performances less well than do men. Specifically, women's expectancies for success at intellectual tasks, novel tasks, in classes, and in imagining themselves engaged in future professions have been found to be lower than men's (Battle, 1966; Crandall, 1969; Deaux & Emswiller, 1973; Feather & Simon, 1973; Feldman-Summers & Kiesler, 1974; Montanelli & Hill, 1969; Rychlak & Eacker, 1962; Rychlak & Lerner, 1965; Stein, 1971). This lower expectancy of success was exhibited by women even when the task was one at which both sexes perform equally well such as anagrams (Feather, 1968; 1969). Crandall (1964) noted that males and

females are equally accurate in estimating their ability but their errors are in the opposite directions. Males generally overestimate whereas females underestimate.

Individuals who have low estimates of success, whether chronic or acute (experimentally induced) are less likely to perform well (Battle, 1965; Feather, 1966). They may avoid demanding achievement and may be less persistent in achievement activities (Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971). Lenney (1977) suggested the low self-confidence is likely to pose a significant barrier to women's achievement. Therefore, she felt that future research should assess the nature and the extent of the phenomenon. She reviewed the available literature (as of mid-September, 1975) and also conducted a study of women's self-confidence in achievement.

Female Self-Confidence in Achievement: Influencing Factors

Lenney's (1977) review of the literature determined three variables that influence women's self-confidence, that is, women's evaluation of their own completed achievement performances compared to their evaluation of others' performances. First, sex linkage of a task (the association of a task with male or female superiority in performance as manipulated by instructions, or by stereotypic implication) has resulted in sex differences in expectancies of success (Stein, Pohly, & Mueller, 1971). When the instructions varied the sex linkage of an anagram task, women expected to perform less well than men on the "masculine" task, but no different from men on the "feminine" task (Deaux & Farris, 1974).

Second, women appear to have lower opinions of their completed performances when clear external feedback is lacking (Julian, Regula, &

Hollander, 1968; Schwartz & Clausen, 1970). On the other hand, when women are given clear and unequivocal information on their performance they do not have performance estimates which are lower than men's (Feather & Simon, 1973; Hill & Dusek, 1969; McMahon, 1973). Women at times may even have higher self-confidence when feedback on performance is provided (House & Perney, 1974). Several other studies explored the amount of change in expectancies for success on tasks as the result of varying reinforcement schedules (positive, negative, or mixed information on performances) and found that women changed their expectancies as much as men (Crandall, 1969; Montanelli & Hill, 1969; Rychlak & Eacker, 1962).

Finally, when women work alone or in anonymous group settings, so that social comparisons are minimal, their performance estimates have not been observed to differ from men's (McMahon, 1973; House, 1974; House & Perney, 1974). However, when women expected their work will be compared with others or will be evaluated by others, their expressed self-confidence has been observed to be lower than men's (Lenney, 1977).

Lenney's study: A test of task and social influences on women's self-confidence. In reporting on an experimental study she had conducted, Lenney (1977) concluded that women's relative self-confidence in completed achievement performances is influenced by the specific ability area in question and by the kind of social cue present. In general, female undergraduates compared their own performance less favorably than men to those of their peers (collapsing across kinds of peers - "the average undergraduate, sex unspecified," "the average male undergraduate," or

"the average female undergraduate" only in the "male" task areas but not in the "female" task areas.

Lenney administered tests in two task areas for which actual sex differences have been reported: verbal ability, where females from the age of 10 or 11 begin to outscore males and where female verbal superiority continues through high school and college (Maccoby & Jacklin, 1974); and spatial ability, where males show an increasing advantage through high school (Maccoby & Jacklin, 1974). She also administered tests in two task areas for which no actual sex differences have been reported, but which she assumed stereotypically suggest greater female or male ability: interpersonal perceptiveness (female); and creativity (male). With regard to the area of interpersonal perceptiveness, the literature reports no major sex differences. Rather, evidence on which sex is more empathic is conflicting (Maccoby & Jacklin, 1974). Women were, however, found to be superior to men in the decoding of nonverbal signs of other people's feelings on a test, the Profile of Nonverbal Sensitivity (PONS) which includes variables, such as tone of voice, facial expressions, and body movements (Rosenthal, Arthur, DiMatteo, Robin, Koivumaki, & Rogers, 1974). With regard to the area of creativity, no clear cut sex differences in the ability have been measured by psychologists. Verbal tests of creative ability show no sex differences in the preschool and earliest years but show females at an advantages in a majority of studies from age 7. Nonverbal tests of creativity show no clear superiority of either sex (Maccoby & Jacklin, 1974).

Lenney's subjects were not provided any objective feedback on their performance in the four task areas. They were, however, asked to

estimate the number of items they themselves had correctly answered and the number correctly given by a peer. One-third of the subjects of each sex were asked to estimate the number of correct (or creative, in the case of the creative ability area) answers given the "the average undergraduate (sex unspecified)" in each test section. The other two-thirds of the subjects of each sex were asked to make this estimate for "the average female undergraduate" in two of their test sections, and for "the average male undergraduate" in the other two sections. Self-confidence" was operationally defined as the difference between the subject's estimated own score and that of a peer. "Overestimation" was when he or she estimated his or her own score above that of a given peer, and "underestimation" was when he or she estimated his or her own score below that of a peer.

Lenney's female undergraduates tended to underestimate their performance in the spatial ability area relative to all three types of peers -- "the average undergraduate (sex unspecified)", "the average male undergraduate", or "the average female undergraduate". However, they compared themselves least favorably to male peers. In the interpersonal perception area, women estimated they had done as well as the average undergraduate, better than their male peers, but not as well as their female peers. In the area of creativity, they felt they had done better than their male peers but not as well as their female peers or the average undergraduate. Only in the verbal area did women's self-confidence not seem to depend on the peer to whom they compared themselves.

In contrast, men's self-confidence was never significantly influenced by the particular peer to whom they were asked to compare them-

selves. Thus Lenney's hypothesis that women's self-confidence may be more dependent than men's on social comparison cues was supported by her findings. She (1977) suggests the possibility that:

> ...women have been socialized not to be low in self-confidence regardless of the specific situation, but instead to be discriminative in making their self-evaluations and to vary their opinions of their own abilities in response to specific achievement situations. (p. 11)

This seems to imply that women, but not men, discern certain ability areas as those in which males are more competent and other ability areas in which females are more competent. However, the females apparently failed to discern the verbal ability area as a "female" competency area. No manipulation checks were performed to determine whether subjects had perceived specific task areas as more representative of female ability or male ability. Neither did Lenney obtain any information from a pretest of the tasks areas to determine whether or not the presumed sex linkage of the tasks was apparent to subjects.

In spite of the ambiguous sex linkage of Lenney's tasks, her basic prediction that women evaluate their finished work, in the absence of clear feedback, less favorably than men, was confirmed. This lower self-confidence in performance was obtained even though the women did not differ significantly from men in actual performance. Moreover, women's self-confidence was more variable than men's depending on task and social comparison cue. What remains unclear, then, is whether or not women's low self-confidence in certain areas is due to their perceptions that these areas are "male" ability areas, or, if a woman estimates that she performed less well than males in an area such as spatial

ability, which is an inherited characteristic more frequent in the male population than in the female population (Stafford, 1961; Vandenberg, 1968), is her lower self-confidence not well grounded?

The Literature's Implications for Female Career Choices

The literature points to several variables which may mediate women's occupational choices. Assuming they have commensurate abilities, some women may choose traditional careers, and others nontraditional careers, based on beliefs about environmental factors, i.e., the probability of achieving success in male dominated career areas, and the value of that success, if it entails sacrifices in personal relationships. However, the literature has also suggested that women's internal dispositions may influence their career choices. The prevalence of low self-confidence among women, particularly in task situations where the task is male and the social comparison being made is to males, may affect their career choices; only those not characterized by such low self-confidence may opt for nontraditional careers. Moreover, nontraditional career women may differ from traditional women in achievement motivations such as the need for mastery or work, or a lack of concern over others' opinions about their success. On the other hand, the traditional women may have a strong feminine sex-role orientation which may lead them to choose careers which are stereotypically feminine.

Purpose of the Present Study

The present study was designed to test Lenney's (1976) supposition that women's self-confidence in their completed performance, in the absence of clear external feedback, poses a barrier to female achievement,

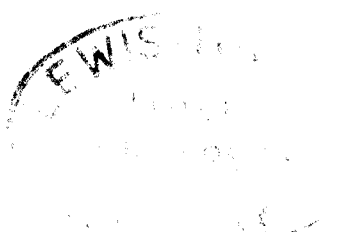
particularly in male achievement domains. As already noted, Lenney reported female undergraduates had more variable self-confidence when comparing their completed task performance to peers' than did male undergraduates. Specifically, the females' but not the males' self-confidence was dependent on the specific ability area and the specific peer to whom they compared themselves. Lenney (1976) argued that "individuals' opinions of their completed work may be important in determining whether they behave in the manner required to achieve success in such activities," (p. 23).

Implicit in the argument is the idea that many women's variable self-confidence inhibits them from achieving in male dominated occupations where they would have to compare their completed performances to males'. Based on this assumption, it seemed likely that women engaged in traditional feminine careers would exhibit, like Lenney's female undergraduates, a pattern of variable self-confidence, but that women engaged in career areas dominated by men would not. The nontraditionals would be exceptions to the female norm. More specifically, the current study predicted that traditional female achievers (teachers, social workers, and homemakers) would express lower self-confidence in their completed performances particularly in male ability areas relative to males, than would nontraditional female achievers (lawyers and businesswomen). It was expected that the traditionals' and nontraditionals' self-confidence patterns would differ, even when their actual performances on the tasks were equal. In addition, traditionals were expected to espouse a stereotypical view that males are superior, a perspective expressed in

their estimates that overall, over male and female ability areas, females perform less well than males.

The present study also attempted to clarify some of the ambiguities in Lenney's research which resulted from failure to determine whether subjects had perceived her research tasks to be sex-linked. A pretest was conducted prior to the present study in which subjects (not the same subjects who participated in the experimental research) were asked whether specific tasks represented areas where both sexes are equally competent. Only tasks which fit the last description, areas of equal competency for both sexes, were utilized as tasks in the research. Sex linkage of the tasks in the experiment was explicitly manipulated by instructions. Experimental manipulation of task sex linkage, presentation of a task as "male" or "female" has been done in other studies (Deaux & Farris, 1974; Stein, Pohly, & Mueller, 1971). This experimental manipulation seems preferable to relying on subjects' perceptions of the sex linkage of tasks (as Lenney had done), perceptions which could vary from individual to individual. In the current research, each research task was presented to half of the subjects as an area of female competency and to the other half of the subjects as an area of male competency.

Another objective of the current study was to broaden the generalizability of findings on female self-confidence in completed task performance to a sample of adult females (age 30 - 40). It also supplements the literature on ways in which the adult female subject occupational groups might differ in intellectual and verbal abilities, sex-role orientation, achievement motivation, attitudes toward education, the



importance of work versus marriage, and the ideal number of children. The latter variables were measured by paper-and-pencil tests, and were included in the present study because they might better predict the divergent modes of female achievement expression, either traditional or nontraditional, than the variable of relative self-confidence. For example, it has been reported in the literature that successful nontraditional female achievers tend to be more masculine and androgynous than their traditional peers (Spence & Helmreich, 1978; Tangri, 1972). In fact, greater self-confidence might be exhibited by those who are more masculine in their sex-role orientation because the latter has been reported to be strongly correlated with the variable of self-esteem (Bem, 1977; Spence & Helmreich, 1978). On the basis of such evidence, it was predicted that nontraditional female achievers would depict themselves as more masculine in sex-role orientation on a paper-and-pencil measure, the Personal Attributes Questionnaire (Spence & Helmreich, 1978).

Moreover, the traditionals and nontraditionals may differ in underlying dimensions of achievement motivation as measured on the four scales of the Work and Family Orientation Questionnaire: Work; Mastery; Competitiveness; and Personal Unconcern. The occupational groups could differ on the subscales even when they have demonstrated commensurate real-life academic achievement, (all held masters' degrees). A demonstration that the occupational subgroups differ on some dimensions of achievement motivation might offer insights into female achievers' occupational choices. It seemed plausible that the groups might differ on the

achievement scale of Competitiveness, with nontraditionals being significantly more competitive than traditionals. Other research has indicated that college women holding nontraditional sex-role attitudes performed significantly better in individual competition against males whereas traditional college women performed significantly better in noncompetitive situations or in team competition with males (Peplau, 1976). This difference was obtained although the two groups did not differ in their levels of academic achievement as measured by grades.

With regard to the Work and Mastery scales, it has been reported that female scientists (where the term scientists referred to persons holding doctorates and teaching in a major university) scored significantly higher than did female undergraduates but not signficantly differently than did male scientists (Spence & Helmreich, 1978). Moreover, the interaction of the scale scores were found to be predictive of the level of achievement for the scientists, measured in terms of citations for scientific achievement. If one considers that the female scientists are nontraditionals and the female undergraduates are traditionals, the prediction for the current study would be clear. However, such a prediction would fail to take into account the higher achievements of the female scientists relative to the female undergraduates. If one studies only nontraditionals and traditionals who have demonstrated a high need for achievement (e.g., only women who have been awarded masters' degrees), it might be predicted and the groups would not differ on the scales of Mastery and Work. On the other hand, women with master's degrees might be expected to exhibit a higher Mastery score than women with less education (bachelor's degrees).

The female scientists (Spence & Helmreich, 1978) scored significantly higher on the Personal Unconcern scale (which taps a lack of concern that others might dislike one for one's personal attainments) than did either female undergraduates or male scientists. It was considered possible that the nontraditionals in the current study might display elevated Personal Unconcern scale scores (that is, be less sensitive to others opinions about their achievement) than would traditionals employed outside the home. Female students with low aspirations in male-oriented areas also scored high, presumably because they did not perceive their accomplishments as threatening to others. Thus, it was predicted that the most traditional women, who do not compete outside the home, may feel that their homemaker accomplishments would not be capable of arousing others' envy and, therefore, might score high.

Finally, a measure of intellectual functioning, the Terman Concept Test served as a control in the present study. If the groups differed significantly on the Vocabulary and/or the Analogies sections of the test, any differences in self-confidence which the groups expressed in the experimental portion of the study might reflect awareness of their level of general intellectual functioning relative to others. It was not anticipated that the groups would differ significantly on this measure, although, if any differences were obtained, it was expected that those women with master's degrees would exhibit higher levels than those women with less education, bachelor's degrees.

Hypotheses Pertaining to the Research Tasks.

In the present study, predictions were made regarding traditional and nontraditional female achievers' performance on achievement tasks,

and self-confidence in their performances. Three groups of traditional female achievers were represented in the study: (a) full-time teachers and social workers who had attained master's degrees in their respective fields (hereafter referred to as Traditionals); (b) full-time homemakers who had attained master's degrees in various fields, both male dominated and female dominated areas (MA Homemakers); (c) full-time homemakers who had attained bachelor's degrees in various fields (BA Homemakers). One group of nontraditional female achievers was represented: (d) full-time lawyers and businesswomen who had obtained either a law degree or a master's degree in business administration (Nontraditionals).

Predictions were not only made for the effect which group membership might have on subjects' estimated performances of selves and peers on the research tasks, but also for the effects which the experimental manipulation of sex linkage of the tasks would have on the estimates.

1. Actual performance. On each of two research tasks, the groups were anticipated to perform comparably. If any significant difference were obtained, it was expected to occur between those women with master's degrees and those with bachelor's degrees, with the former exhibiting the superior performance.

2. Estimated self-performance. Group membership was not predicted to significantly affect estimated self-performance over both task types (Remote Associates and Memory), or on a specific task type.

3. Estimated male and estimated female performance on the male versus the female task: Experimental manipulation of task sex linkage (presentation of a task as an area of male or of female competence) was expected to affect the women's estimates of male performance so that the

estimates would be significantly higher on the male than on the female task. Conversely, it was expected that the task sex linkage would result in significantly higher estimates of female performance on the female task than on the male task. Moreover, male performance was anticipated to be significantly higher than female performance on the male task; and conversely, female performance was predicted to be significantly higher than male performance on the female task.

The following hypotheses involve group membership as an independent variable interacting with other variables to produce significant differences in estimated performance scores.

4. Effect of group membership on estimated performance. With respect to estimated self-performance, group membership interacting with experimentally manipulated task sex linkage was predicted to have a significant affect. On tasks presented as areas of male ability, the three traditional groups were expected to estimate self-performance at a significantly lower level than on the tasks presented as areas of female ability. The Nontraditionals' estimates of self-performance were not expected to differ as the consequence of experimental manipulation of task sex linkage.

For the purpose of the current study, self-confidence was operationally defined as subjects' estimates of their own performance compared to their estimates of peer performance. Underestimation of self-performance relative to others was construed as low self-confidence, and overestimation was considered indicative of high self-confidence. Therefore, the

differences between the self-performance estimates and the estimates of peer performances are central to the current experiment.

It was hypothesized that the traditional groups would express a lower level of overall self-confidence than the nontraditional group. When estimated scores of stimulus persons (both male and female) over male and female tasks were compared to self-estimates, the traditional groups were predicted to underestimate their own performance to a greater degree than the nontraditionals. The homemaker groups were expected to manifest the lowest general level of self-confidence of the groups.

It was further anticipated that the traditionals, but not the nontraditionals, would exhibit the following patterns in estimated self-scores relative to estimated peer scores: estimated self- would be lower than estimated male scores but the estimated self- would not be lower than the estimated female scores over task sex linkage; the estimated self-scores would be lower than the estimated male scores on the male but not on the female task.

Group membership was predicted to result in significantly different estimates of female performance on the task presented as an area of male competence. The traditional groups were expected to estimate female performance on the male task significantly lower than the nontraditional group.

It was expected that group membership would significantly affect estimates of male performance relative to female performance, across male and female tasks. Specifically, the traditional groups, but not the nontraditional group, were predicted to estimate male performance

higher than female performance across task sex linkage.

Although all subjects were expected to estimate female performance higher on the female task than on the male task, it was predicted that the differences between the two estimates would be significantly greater among the traditional groups than for the nontraditional group.

Hypotheses for Intelligence, Sex-Role Orientation, and Achievement Motivation.

The current study predicted that: (a) the groups perform comparably on a measure of intelligence; (b) the nontraditional achievers score significantly higher on the masculinity scale of a sex-role orientation measure; (c) the nontraditionals express the highest level, and the homemakers the lowest level of competitiveness, a component of achievement motivation; (d) the nontraditionals and homemakers with bachelor's degrees express the least concern and the traditionals, teachers, social workers, and MA homemakers, the most concern that others might dislike them for their achievement (also considered a component of achievement motivation); (e) the master's degree groups would demonstrate a higher need for mastery than the bachelor's degree groups; and (f) the groups would not differ in their desire to work hard.

CHAPTER III

METHOD

Overview

Women in nontraditional and traditional occupations, and full-time homemakers, were recruited to participate in a study investigating occupational groups' attitudes and task performances. The nontraditionals were lawyers and businesswomen with law or master's degrees. The traditionals employed outside the home were teachers and social workers, also with master's degrees. The two groups of full-time homemakers were comprised of women with master's degrees and of those with bachelor's degrees. All subjects were first administered a screening questionnaire to verify their qualifications for inclusion in the study's sample. Then they were given a measure of intellectual functioning, the Terman Concept Test. Following this, two research tasks, the Remote Associates (a measure of verbal creativity), and the Memory Task, were given. One of the two tasks was presented by the experimenter as an area where men perform better than women, and the other task as an area where women perform better than men. This portrayal of a sex's competency on a particular task was rotated over respondents, as was order of presentation of the tasks. Upon completion of a research task, subjects estimated the per cent of task items which they had answered correctly, and also estimated the per cent which the average male professional had answered correctly. Next, a measure of achievement motivation, the Work and Family Orientation Questionnaire, and scales pertaining to attitudes

toward marriage, education, and number of children desired, were administered. Finally, a sex-role orientation measure, the Personal Attributes Questionnaire was given. At the conclusion of the session a personal interview was conducted in which a manipulation check was made, and in which subjects were debriefed.

Design

The experimental portion of the present study represents a 4(group) x 2(task) x 2(presentation of a task as male or female) x 3(estimated performance of stimulus persons judged: self, male, female) design. Groups and condition (which task was male and which task was female) were independent variables. Task sex linkage and performance estimates of stimulus persons judged were repeated measures. Subjects were nested within groups and condition. A measure of intellectual functioning, the Terman Concept Mastery Test, served as a control variable; it provided data on the intellectual abilities of the groups.

Scores on the following measures were also obtained in the expectation that group membership might be predicted from the data: the Work and Family Orientation Questionnaire (a measure of four dimensions of achievement: Work, Mastery, Competition, and Personal Unconcern); the Personal Attributes Questionnaire (a measure of sex-role orientation); and scales tapping attitudes toward education, marriage, and number of children desired.

Subjects

Sixty-four adult women, 30 to 40 years of age, served as subjects in this study. At the time of this study, 48 of the subjects had been awarded graduate degrees. Sixteen were employed in traditionally male

occupational areas (where a majority of the professionals in that area are male according to U.S. Census data) and had attained either a degree in law or a master's degree in business administration. Sixteen were employed outside the home in traditionally female occupational areas (where a majority of the professionals in that area are female according to U.S. Census data) and had attained either a master's degree in education or social work. Another 16 were women who had attained master's degrees in some discipline but who were not employed outside the home. Initially, the homemaker sample was to consist of women with master's degrees who stated that they do not intend to seek employment outside the home in the foreseeable future. However, nearly all of these master's degree homemakers stated an intention to seek employment outside the home when their children were "a little older." Therefore, an additional sample of 16 homemakers, a group who had attained bachelor's but not master's degrees, and who stated they do not intend to seek employment outside their homes in the near future, was included in this study. All women were married.

Women were recruited to participate in a study "involving task performance among various occupational groups." Subject pools were obtained from lists of university graduates who were awarded masters' degrees 7 to 17 years ago, and from consumer research interviewing firms who interview large numbers of women. Subjects were interviewed prior to participation in the actual study to ascertain that they fulfilled the age, educational, marital, and occupational requirements of the study, and further to determine that they resided in the Chicago metropolitan area where the study was conducted. All subjects volunteered to

participate in the survey. None was paid for her participation.

Measures

Four types of measures were administered: (a) a measure of achievement motivation, Spence and Helmreich's (1978) Work and Family Orientation Questionnaire; (b) a sex role inventory, the Personal Attributes Questionnaire (Spence & Helmreich, 1978); (c) a measure of self-confidence obtained from respondents' estimates of self performance and peer performance on each of two research tasks (for which no significant sex differences were perceived by female subjects in a pre-test); and (d) a brief test which correlates highly with standard measures of intelligence, the Concept Mastery Test (Terman, 1950).

The Work and Family Orientation Questionnaire. This objective measure of achievement motivation has been reported to have good predictive validity for real life achievement behavior, and seems preferable to the TAT measures of achievement motivation because, as discussed earlier, the projective TAT measures may be influenced by factors seemingly unrelated to achievement motivation. Also, scoring of the Work and Family Orientation Questionnaire presents fewer problems than scoring the projective TAT, because coding it is less time-consuming and requires no judgmental decisions on the part of the coder. The measure also seems more reliable. Helmreich and Spence (1978) have reported an alpha coefficient of .69 among a college student sample).

The Work and Family Orientation Questionnaire contains 23 items dealing with achievement motives and nine questions about educational aspiration, pay, prestige, and advancement. These 23 motivational items were factor analyzed (Helmreich & Spence, 1978) for 851 female and 607

male college students using the principal axis solution with oblique rotation. Four factors were obtained for each sex and were labelled: Work Orientation, Mastery, Competitiveness and Personal Unconcern. There are 19 motivational items which comprise these factors, each of the items are rated by subjects on a 5-point scale ranging from "strongly agree" to "strongly disagree."

The items describe work- and achievement-related situations; for example, an item from the Mastery scale states "I would rather do something at which I feel confident and relaxed than something which is challenging and difficult" and subject agreement indicates a low need for Mastery.

The different scales may be regarded as different components of achievement motivation. The Work Orientation scale items deal with the desire to work hard and to keep busy (a high score reflects a high desire to work hard). The Mastery scale items describe a preference for difficult, challenging tasks, a desire to maintain internal standards of excellence (a high score reflects a high need for Mastery). The Competitiveness scale items reflect the desire to best others, to be successful in interpersonal competition (a high score reflects a high competitiveness). The fourth scale, the Personal Unconcern scale, is conceptually similar to Horner's (1972) concept of fear of success, and its items embody concern about the negative reactions of others to one's achievements (a high score reflects a lack of concern about the opinions of others).

The final 3 nonmotivational items inquire about the least amount of education which would satisfy the respondent, the relative importance

of marriage in comparison to work in determining life satisfaction, and the number of children ideally desired. Five alternative choices are given for each of these items. (This questionnaire is shown in Appendix B.)

The Personal Attributes Questionnaire. This measure of sex-role orientation was selected because Spence and Helmreich (1978) have reported data among adult employed female achievers, scientists, which can provide comparisons to data collected from this study with adult female achievers.

The measure consists of 24 bipolar items describing personal characteristics. Each item provides a 5-point scale on which respondents are asked to rate themselves. The personal characteristic items are divided into three eight-item scales, labelled Masculinity (M), Femininity (F), and Masculinity-Femininity (M-F). The stereotypic characteristics represented by the Personal Attributes are socially desirable attributes. The items on the M scale mainly refer to agentic instrumental attributes, while, in contrast, the items of the F scale refer to expressive, communal characteristics. The M-F scale contains a mix of these types of characteristics, some agentic, some communal, some both. A high score on items assigned to the M and M-F scales indicates an extreme masculine response, and a high score on the F scale items and a low score on the M-F scale items indicates an extreme feminine response. The M Scale characteristics are: independence, activity, competitiveness, ease of decision making, persistence, self-confidence, feeling of superiority, and ability to withstand pressure. The M-F characteristics are: aggressiveness; dominance; non-excitability in a major crisis; worldliness;

indifference to others' approval; feelings not easily hurt; never crying; and little need for security. The F characteristics are: emotionality; devotion to others; gentleness; helpfulness; kindness; sensitiveness to others' feelings; understanding of others; and warmth.

The measure's authors (Spence & Helmreich, 1978) have reported satisfactory reliability for its scales among a sample of students; Cronbach alphas for the scales were: M, .85; F, .82; and M-F, .78. They also report good real-life validity for the scales. Among the two college samples, the two sexes differed significantly on every item with males scoring higher on the M and the M-F scale items and lower on the F scale items.

Tasks for self-confidence. A pretest was conducted to provide some preliminary information on sex linkage of several different task areas. Seventeen females, all of whom are employed fulltime in a Chicago area business firm, served as subjects. Their ages ranged from 30 to 40 years and both single and married women were included in the pretest sample. In terms of educational background, nine had completed high school and some college; five had completed college; and three had obtained masters' degrees. All of these subjects, regardless of education, regarded 6 of 13 ability areas presented to them as non-sex linked, that is, areas where both sexes perform equally well. These pretest subjects did not serve as subjects in the actual study. The ability areas were: (a) memory; (b) spatial ability; (c) creative thinking; (d) problem solving; (e) analogies; and (f) general intelligence.

Although spatial ability was regarded by these pre-test subjects as an ability area in which both sexes would perform equally well, the

literature reports that men generally perform better on such tasks than women. Thus spatial ability was not selected as a research task area for the current study.

Another ability area, analogies, was included in the current study, but not as a research task. The analogies section of the Concept Mastery Test (Terman, 1950) was administered to the occupational groups to determine whether they differed in their levels of intellectual functioning. Thus analogies was not selected as one of the two research task areas in the present study.

Excluding the broad ability area of general intelligence, three specific ability areas were considered for inclusion in the current study: memory, verbal creativity, and problem solving. Tasks representing the first two of these three areas were selected as experimental tasks: (a) the Memory Game (Reiss Games, Inc., 1976) which represents the ability area implied by its name; and (b) the Remote Associates Test (Mednick & Mednick, 1967) which, according to its manual, represents the ability area of creative thinking. However, evidence on the test's validity in predicting real-life creative accomplishments, published since the manual, is mixed; therefore, some consider the test to be a measure of specialized verbal ability rather than a test of creativity (Buros, 1972).

Pretests of these two tasks among adult females determined that the tasks were not perceived as sex linked. The pretest also provided some assurance that the tasks would be perceived as challenging but not so difficult that variability in performance estimates would be narrowly restricted. A description of the two research tasks follows.

Task one: the Memory Game (Reiss Games, Inc., 1976) consists of two plastic boards. The lower piece is a solid plastic sheet with indentations which hold 15 black and white photographs of common objects, for example, coathangers, a camera, eyeglasses, and a toaster. Each picture measures 2 inches by 2 inches. The upper piece is a plastic sheet with 15 windows cut out, each window measuring 2 inches by 2 inches, through which the photographs are exhibited. A number appears beneath each photograph. These numbers appear nonsequentially: 12, 10, 1, 4, 13, 6, 8, 7, 9, 14, 2, 5, 11, 15, and 3. (No evidence pertaining to reliability or validity of this measure was available.)

Each subject was allowed to view these photographs and numbers for 2 minutes. The photographs and numbers were then covered with a sheet of paper. For every number, the subject was asked to name the object which had appeared in the photograph above that number. After completing the task, the subject was asked to estimate the per cent of the items answered correctly by self and peers -- male and female.

Task two: the Remote Associates Test (Mednick & Mednick, 1967) is comprised of 30 items. Each item consists of three words. The subject was asked to find a fourth word associated in some way with the other three. For example, the word "sweet" is the fourth word associated with each of the following words: "cookies," "sixteen," and "heart." Fifteen minutes were allowed for performing this task. Each subject was asked to estimate the per cent of items answered correctly by self and male and female peers. As already mentioned, the test appears to measure a particular type of verbal skill or verbal creativity. Its reliability, as reported

in its manual is high, .91 and .92 for odd-even reliability, and .81 between forms, but its validity in predicting real-life creative accomplishments is mixed (although it is often difficult to construct criteria for real-life creativity) (Buros, 1972).

The Concept Mastery Test. This measure contains two parts: (a) synonyms and antonyms, and (b) analogies. The first part contains 115 items, pairs of words which have either the same or opposite meaning. For this section, the subject was asked to indicate which word pairs have the same meaning by marking an "S," and which word pairs have the opposite meaning by marking a "C." The second part contains 75 items. Each item consists of two words which are related in some way, and a third word for which the subject must select another word (from three choices) to demonstrate the similar type of relationship. The measure is a verbal test which entails the ability to recognize verbal concepts and abstractions. Its reliability has been reported to be between .86 and .94 using parallel forms of the test. Although recognized as a test of high level abilities, its ability to predict real-life graduate academic or high level occupational success is not as good as its ability to predict early academic success (Buros, 1962).

Procedure

Women participated in the experiment alone or in a small group of no more than three respondents. Each experimental session was conducted by the experimenter and was approximately 90 minutes in length. Subjects were instructed that the study was being conducted by a university student interested in various occupational groups' task performances and attitudes. Further, they were informed that their individual responses

would be confidential. (A demographic screening questionnaire was first administered to assure the experimenter that subjects met the sample qualifications of the study. This questionnaire is shown in Appendix A.) Then the measures were administered. Subjects were told that if they were interested in obtaining information on the study's outcome, it would be made available to them within the year following the experimental session.

The order of presentation of tasks in the current study was as follows: (1) Terman; (2) the two research tasks, the Remote Associates and the Memory tasks, the order of which and the sex linkage of which was rotated over subjects; (3) the Work and Family Orientation Questionnaire; and (4) the Personal Attributes Questionnaire. This order was used to prevent possible reactive effects which subjects might have had to the research tasks if they had first been questioned about their sex-role orientation and achievement motives. (The introduction and instructions for each task are shown in the Appendix).

As mentioned, the sex linkage of a specific research task was rotated over subjects. One half of the subjects were introduced to a specific task as "an area where men seem to be doing well"; and the other half were introduced to that same task as "an area where women seem to be doing well".

After completion of a task, the subject was asked to estimate her own completed self performance and that of "the average male professional" and "the average female professional". Whereas Lenney asked subjects to estimate the number of correct answers which they had achieved, the

current study asked subjects to estimate the per cent of correct answers which they had achieved. The latter type of estimate was used so that subjects would not try to recall the number of items answered on a specified task but, instead, would think in terms of general performance level.

At the conclusion of the experimental session, the subject was asked whether she found the task descriptions believable:

> Was the task description believable? That is, did you believe that (the Memory Task/Remote Associates Task) was really a task at which men/women perform better? And how about the other task, did you believe that it was a task at which (men/women) perform better? (If respondent did not believe the descriptions of the tasks, that one sex performs better than the other on a specific task, ask:) How did you perceive the tasks?

A personal interview followed the experimental session in which the experimenter probed subjects' occupational choices. The experimenter then briefly explained the nature of the research and told subjects they could obtain information on the study's outcome, if they were interested, within the year following the session.

CHAPTER IV

RESULTS

Intellectual and Task Performance of the Groups

Prior to testing the hypotheses relevant to self-confidence, it was necessary to determine the extent to which the four groups of women -- the lawyers and businesswomen (hereafter called the Nontraditionals because they have chosen career paths not traditionally female), the master's degree teachers and social workers (hereafter called the Traditionals), the master's degree homemakers (MA Homemakers) and the bachelor degree homemakers (BA Homemakers) were comparable in terms of intellectual functioning on the Terman Concept Test and in performance on the two experimental tasks.

It was anticipated that the groups' levels of performance on these measures would be similar. To the extent that the groups' actual performances were not comparable, the possibility that differences in the estimates of self-performance on the experimental tasks could simply reflect a group's objective appraisal that they were performing at a high or low level must be allowed. Similarly, to the extent that the level of intellectual functioning is associated with self-confidence, differences on this variable might also obscure the meaning of differences on the measure of self-confidence if they were obtained. (Self-confidence has been operationally defined for the purpose of the present study as the estimate of self-performance relative to the estimate of peer performance, either male or female.)

First, the groups' performance on the measure of intellectual functioning, the Terman Concept Mastery Test, is analyzed; second, the groups' actual performance on the research task is examined to determine if the groups did differ significantly from one another.

Performances on the Terman Concept Mastery Test. In order to assess the groups' levels of intellectual functioning, the scores on the two subtests of the Terman Concept Mastery Test, the Vocabulary Test and the Analogies Test, were examined. The mean scores (number of test items answered correctly) and standard deviations are both exhibited in Table 1.

A one-way analysis of variance for each subtest was conducted. Both analyses show that the groups did not perform equivalently; for the Vocabulary Test, $F(3,60) = 3.98$, $p < .05$; for the Analogies Test, $F(3,60) = 4.27$, $p < .01$. Duncan's New Multiple Range Test was used to determine which group differences contributed to the rejection of the null hypotheses. Duncan's test demonstrated that for both subtests, the Nontraditionals and the Traditionals did not differ significantly in their levels of performance (for the Vocabulary Test, the mean score of Nontraditionals was 86.69, and of Traditionals, 81.13; for the Analogies Test, the mean score of Nontraditionals was 58.50, and of Traditionals, 52.88). However, the Nontraditionals' level of performance was significantly higher than the MA Homemakers (Vocabulary Test, $M = 71.44$; Analogies Test, $M = 50.94$) and also significantly higher than the BA Homemakers (Vocabulary Test, $M = 70.94$; Analogies Test, $M = 48.31$). Thus, the significant F ratios were due to the better scores of the Nontraditionals relative to the 2 homemaker groups.

Table 1

Mean Scores and Standard Deviations

of the Four Groups

on the Terman Concept Mastery Test

	Vocabulary Test	Analogies Test
Groups:		
BA Homemakers		
M	70.9	48.3
SD	20.4	7.7
MA Homemakers		
M	71.4	50.9
SD	18.1	10.9
Traditionals		
M	81.1	52.9
SD	10.0	8.6
Nontraditionals		
M	86.7	58.5
SD	10.4	5.3
Total Sample		
M	77.5	52.7
SD	16.5	9.0

Because the groups' levels of actual performance on the tasks of intellectual functioning were not equivalent, the variable of intelligence must be considered as possibly affecting estimates of self-performance on the research tasks and also self-confidence. If the variable is reflected in the self-estimates or self-confidence, then the group which performed at the highest level on the intellectual tasks, the Nontraditionals, should also exhibit the highest scores for these other variables. The same consideration must be made if the Nontraditionals perform significantly better than any of the other groups on the actual research tasks.

Actual performance on the two research tasks. In order to determine whether the groups differed significantly in actual performance on the two research tasks, their mean scores (per cent of test items answered correctly) and standard deviations were obtained. These data are shown in Table 2 for the four groups.

A one-way analysis of variance for each research task, the Remote Associates and the Memory task, was done using the actual performance scores as the dependent variable and group membership as the independent variable. The results indicate that the groups' actual performance scores differed significantly on the Remote Associates task F (3,60) = 2.82 $p < .05$, but did not differ significantly on the Memory task F (3,60) = 1.45, NS.

To determine which group differences contributed to the rejection of the null hypothesis regarding the groups' actual performances on the Remote Associates task, Duncan's New Multiple Range Test was applied

Table 2

Mean Scores and Standard Deviations

of the Four Groups

on the Two Research Tasks:

Actual Performances*

	Remote Associates Task	Memory Task
Groups:		
BA Homemakers		
M	43.6	62.5
SD	14.0	25.3
MA Homemakers		
M	43.2	53.0
SD	22.2	26.3
Traditionals		
M	39.6	51.4
SD	15.6	21.3
Nontraditionals		
M	55.6	45.4
SD	9.7	20.7
Total Sample		
M	45.4	53.1
SD	16.7	23.8

* Per cent of test items answered correctly.

to the data. It demonstrated that the Nontraditionals performed significantly better ($\underline{M}$ = 55.6), than the other groups (Traditionals, M = 39.6, MA Homemakers, $\underline{M}$ = 43.2, and BA Homemakers, $\underline{M}$ = 43.6).

For this measure, too, the prediction that the groups' performance levels would not differ significantly was rejected. Results indicate the Nontraditionals' superior performance must be considered as a possible contributor to any higher estimates of own performance on the research tasks, or to any higher self-confidence which this group might exhibit.

It is interesting to observe that the Nontraditionals, having scored significantly higher than the other occupational groups on the Remote Associates task, exhibited the lowest mean score (though not significantly lower than the other groups) on the Memory task. It was not anticipated that the Nontraditionals would perform significantly better than the other groups on either research task. The fact that they did perform significantly better than the other groups on the Remote Associates task would have assumed particular importance if reflected in higher estimates of self-performance and, subsequently, (because the self-performance estimates were the basis of gauging self-confidence), in higher self-confidence.

In the next section, the data concerning self-estimates or performance on the research tasks demonstrates that the Nontraditionals' higher level of intellectual functioning and superior performance on one of the two research tasks (the Remote Associates task) did <u>not</u> translate into higher self-estimates of performance on the tasks. Consequently, the self-estimates can be utilized in this study's operational definition of self-confidence.

Manipulation Check Results

Upon a woman's completion of the paper-and-pencil measures, a personal interview was conducted with each woman by the experimenter. In response to the question regarding the believability of task instructions (which stated one task was one at which men perform better and the other task was one at which women perform better), subjects' comments indicated that they generally believed the experimental manipulation of task sex linkage. It was not uncommon for subjects to provide a rationale for the superior performance of one sex over the other on an experimental task. For example, the following rationale was proposed by a subject (Traditional) to explain why women perform better on the Remote Associates task than do men:

> I can tell you why women do better on the Remote Associates. It's like the crazy games they play at showers.

Some subjects claimed to have been skeptical about the instructions because the sexes were not portrayed as performing equally on the tasks; nonetheless, these subjects were observed to have estimated males' and females' scores differentially, apparently as a result of the manipulation of task sex linkage. An analysis of the data itself (shown in Table 7) provides further verification of the effectiveness of the manipulation; across all four subject groups. Subjects perceived women as performing better than men in female ability areas, and conversely, men as performing better than women in male ability areas. On the female task, the estimates of female performance (M = 54.5) were significantly higher, $t(63) = -5.46$, $p < .001$, than estimates of male performance (M = 47.7). Moreover, on the male task, the estimates of male performance (M =

57.3) were significantly higher, $t(63) = 3.39$, $p < .001$, than estimates of female performance ($M = 53.0$).

Estimated Self-Performance on the Two Research Tasks

Following completion of a research task, the subject was asked to estimate, in general, the per cent of the task items that: she answered correctly; the average male professional answered correctly; and the average female professional answered correctly. The term "professional" was not defined in any way. (The present study's author anticipated that those women who had obtained master's degrees might perceive themselves as professionals in their respective areas.) These three estimates were obtained for both the Remote Associates task and the Memory task. As noted previously, each task was presented as an area of male expertise to half of the subjects and as an area of female expertise to the other half of the subjects. All subjects completed both tasks. The order of the presentation of tasks to subjects was counterbalanced.

Of particular interest in the present study were the subjects' estimates of self-performance on the research tasks. First, because the Nontraditionals had demonstrated superior performance on the Remote Associates task compared to the homemaker groups. it was important to consider whether the Nontraditionals' self-estimates of performance reflected awareness of their superiority. The mean scores (given in per cent answered correctly) and the standard deviations for estimated self-performance on the Remote Associates task and the Memory task, and for the Male and Female tasks are shown in Table 3. A one-way analysis of variance for each research task, the Remote Associates and the Memory task, was done using the estimated performance scores of self as the

Table 3

Estimated Self-Performance (Per Cent Correct)
on Research Tasks:
Remote Associates and Memory Tasks,
Each Presented as Male and Female Tasks

	Remote Associates Task			Memory Task		
	Male	Female	Total	Male	Female	Total
Groups:						
BA Homemakers						
M	38.5	51.3	44.9	62.1	52.6	57.4
SD	20.6	28.5	24.9	28.9	27.1	27.6
MA Homemakers						
M	41.6	31.4	36.5	51.3	42.3	46.8
SD	20.8	28.3	24.6	27.1	26.3	26.2
Traditionals						
M	46.0	38.1	42.1	44.4	50.5	47.4
SD	22.2	29.3	25.4	21.6	29.3	25.1
Nontraditionals						
M	58.9	51.0	54.9	35.0	48.5	41.8
SD	19.5	17.5	18.4	21.9	19.2	21.1
Total Sample						
M	46.3	42.9	44.6	48.2	48.5	48.3
SD	21.3	26.5	23.9	25.9	24.8	25.1

Note: Number of women per group was 16; to 8, a task was presented as male, and to the other 8, it was presented as female.

dependent variable and group membership as the independent variable. The results indicate that the groups' estimated self-performance scores did not differ significantly on either task (for the Remote Associates task, F (3,60) = 1.73, NS; or for the Memory task, F (3,60) = 1.09, NS). Thus, the Nontraditional group which had actually performed significantly better than the other groups on the Remote Associates task, did not estimate their self-performance any higher than did the other groups.

Estimated Performance of Stimulus Persons

The groups' mean estimated performance scores for stimulus persons judged (self, male, female) and the standard deviations are shown by task type (Remote Associates or Memory) in Table 4 and by task sex linkage (the task was described as either a male or a female area of expertise when presented) in Table 5.

In the current study, self-confidence was operationally defined as the estimated self- compared to an estimated peer score. If the estimated self-score was lower than the estimated peer score, it was construed as low self-confidence. If the estimated self-score was higher than the estimated peer score, it was considered indicative of high self-confidence.

A four-way analysis of variance was utilized in analyzing the data on estimated performance scores of stimulus persons judged. The ANOVA had repeated measures on two factors (task type and estimated performance scores of stimulus persons, and had subjects nested within group and within task sex linkage. A summary of this analysis is shown in Table 6.

Table 4

Estimated Performance (Per Cent Correct)

of Stimulus Persons

Judged on Remote Associates and Memory Tasks

(Regardless of Sex Linkage of Task)

	Estimated Self	Estimated Male	Estimated Female
Groups:			
BA Homemakers			
Remote Associates Task			
M	44.9	51.8	56.6
SD	24.9	17.7	20.3
Memory Task			
M	57.4	53.1	57.8
SD	27.6	19.3	19.3
MA Homemakers			
Remote Associates Task			
M	36.5	48.3	48.0
SD	24.6	22.9	22.0
Memory Task			
M	46.8	54.7	58.1
SD	26.2	21.8	21.2
Traditionals			
Remote Associates Task			
M	42.1	50.1	48.9
SD	25.4	20.2	20.1
Memory Task			
M	47.4	54.3	53.1
SD	25.1	13.6	16.1
Nontraditionals			
Remote Associates Task			
M	54.9	57.1	55.8
SD	18.4	17.0	17.2
Memory Task			
M	41.8	50.6	51.9
SD	21.1	18.6	21.2
Total Sample:			
Remote Associates Task			
M	44.6	51.8	52.3
SD	23.9	19.4	19.9
Memory Task			
M	48.3	53.2	55.2
SD	25.1	18.2	19.3
Both Remote Associates and Memory Tasks			
M	46.5	52.5	53.8
SD	19.3	14.5	17.8

Table 5

Estimated Performance (Per Cent Correct)

of Stimulus Persons

Judged on Male and Female Tasks

(Regardless of Task Type)

	Estimated Self	Estimated Male	Estimated Female
Groups:			
BA Homemakers			
Male Task			
M	45.6	55.2	53.9
SD	24.4	17.2	19.4
Female Task			
M	56.7	49.7	60.4
SD	28.3	19.4	19.7
MA Homemakers			
Male Task			
M	41.9	54.2	50.2
SD	22.9	20.8	18.5
Female Task			
M	41.3	48.7	55.9
SD	28.7	24.0	25.1
Traditionals			
Male Task			
M	48.3	58.6	51.8
SD	25.2	14.4	18.6
Female Task			
M	41.3	45.8	50.3
SD	25.1	17.5	18.0
Nontraditionals			
Male Task			
M	53.7	61.3	56.3
SD	19.5	13.8	16.8
Female Task			
M	43.0	46.4	51.4
SD	20.9	18.7	21.4
Total Sample:			
Male Task			
M	47.4	57.3	53.0
SD	22.9	16.6	18.1
Female Task			
M	45.6	47.7	54.5
SD	26.1	19.6	21.1
Both Male and Female Tasks			
M	46.5	52.5	53.8
SD	19.3	14.5	17.8

Table 6

Summary of Analysis of Variance for Estimated Performance

(Per Cent Correct)

of Stimulus Persons Judged --

Estimated Self, Estimated Male, Estimated Female Scores

Source	df	MS	F	p
Male/Female Task (S)	1	.934	< 1.00	NS
Group (G)	3	.502	< 1.00	NS
S x G	3	.703	< 1.00	NS
Error A	56	.145		
Task Type (T)	1	.685	< 1.00	NS
S x T	1	.106	1.40	NS
G x T	3	.127	1.69	NS
S x G x T	3	.999	1.32	NS
Error B	56	.756		
Comparison - Self, Male, Female (C)	2	.195	12.97	.001
S x C	2	.683	< 1.00	NS
G x C	6	.145	< 1.00	NS
S x G x C	6	.296	< 1.00	NS
Error C	112	.151		
T x C	2	.456	< 1.00	NS
S x T X C	2	.105	10.89	.001
G x T x C	6	.171	1.77	NS
S x G x T x C	6	.845	< 1.00	NS
Error D	112	.965		

No significant main effects were obtained for the variables of task sex linkage, group membership of subject, nor for task type; but a significant main effect was found for estimated performance scores of stimulus persons judged: $F(2,112) = 12.97$, $p < .001$. Over both task types (Remote Associates and Memory), over groups, and over male and female tasks, the mean score for estimated self (46.5) was significantly lower than for estimated male (52.5), $t(63) = 3.41$, $p = .001$ and also, was significantly lower than for estimated female (53.8), $t(63) = 3.81$, $p < .001$. (These data are shown in Table 7.) This main effect had not been predicted. All subjects, including the Nontraditionals (who had performed significantly better than the other groups on one of the two research tasks, the Remote Associates), demonstrated low self-confidence in their completed task performances by estimating their self-scores lower than peer scores. This low self-confidence was apparent relative to peers of both sexes, over male and female tasks, and for both task types. The four groups' mean estimated performance scores for self and for peers are summarized in Table 8. Moreover, although these subjects saw themselves as performing less well than peers, they did not perceive other females as performing less well than males; estimated female performance did not differ significantly from estimated male performance, $t(63) = 1.47$, NS.

Only one significant interaction effect was obtained, for task type (Remote Associates or Memory) by task sex linkage (male or female) by comparison (estimated scores of stimulus persons judged); $F(2,112) = 10.89$, $p < .001$. (The means and standard deviations for stimulus persons judged on each task type, when a task was presented as male or female,

Table 7

Estimated Performance of Stimulus Persons Judged on:
Remote Associates Task as a Male and as a Female Task,
and Memory Task as a Male and as a Female Task

	Remote Associates Task	Memory Task	Over Both Task Types
Male Task			
Estimated self			
M	46.3	48.4	47.4
SD	21.3	24.8	22.9
Estimated male			
M	58.8	55.8	57.3
SD	15.0	18.2	16.6
Estimated female			
M	53.3	52.8	53.0
SD	16.1	20.1	18.1
Female Task			
Estimated self			
M	42.9	48.2	45.6
SD	26.5	25.9	26.1
Estimated male			
M	44.8	50.5	47.7
SD	21.0	18.0	19.6
Estimated female			
M	51.3	57.7	54.5
SD	23.3	18.4	21.1
Over Both Male and Female Tasks			
Estimated self			
M	44.6	48.3	46.5
SD	23.9	25.1	19.3
Estimated male			
M	51.8	53.2	52.5
SD	19.4	18.2	14.5
Estimated female			
M	52.3	55.2	53.8
SD	19.9	19.3	17.8

Table 8

Mean Estimated Performance of Stimulus Persons Judged

(Regardless of Task Type or Task Sex Linkage)

by Groups

	Estimated Self	Estimated Male	Estimated Female	Estimated Peers (Both Male and Female)
BA Homemakers	51.1	52.4	57.2	54.8
MA Homemakers	41.6	51.5	53.2	52.4
Traditionals	44.8	52.2	51.0	51.6
Nontraditionals	48.3	53.8	53.8	53.8

are shown in Table 7.) This significant interaction of task type with the other two variables was not predicted.

An examination of the effects of presenting the same task type as male or female (in Table 7) revealed that the experimental manipulation significantly affected estimated male scores in the expected direction, resulting in higher estimates on the male and lower on the female task, for both task types. When the Remote Associates was presented as male, the mean estimated male score (58.8) was significantly higher than on the female, Memory task (50.5), $t(31) = 2.05$, $p < .05$. Moreover, when the other task type, the Memory task, was presented as male, the mean estimated male score on it was significantly higher (55.8) than on the female, Remote Associates task (44.8), $t(31) = 2.91$, $p < .01$. Thus, the male scores on a particular task type differed significantly, depending on whether the task was described as one on which men or women performed better. However, the estimated self and estimated female scores were only affected as anticipated on the Memory task, not on the Remote Associates task, so that the scores were higher on the female than on the male tasks, but not significantly.

When the Memory task was described as female, mean self-estimates were somewhat but not significantly higher (48.2) than on the Remote Associates task described as male (46.3), $t(31) = .33$, NS. However, when the Remote Associates was female, the mean self-score was actually somewhat, though not significantly lower (42.9) than on the male Memory task (48.4), $t(31) = 1.14$, NS. Thus the sex-role appropriateness of the task influenced self-scores only for the Memory, not the Remote Associates

task. This same pattern was obtained for the estimates of female performance. The mean estimated female score on the Memory task presented as female was higher, though not significantly so, (57.7) than on the male Remote Associates task (53.3), $t(31) = .99$, NS; but when the Remote Associates was female, the score (51.3) was again slightly lower than on the male Memory task (52.8), $t(31) = .35$, NS. Evidently, these subjects had a relatively accurate perception that they had performed better on the Memory task than on the Remote Associates task, and their perceptions were not distorted by the experimental manipulation of task sex linkage. Over all subjects, the Pearson correlation of actual with estimated performance for the Remote Associates task was .86, and for the Memory task .93. (The correlation coefficients for the total sample and groups are shown in Appendix A.) Additionally, they appear to have expected that other females would also perform better on the Memory than on the Remote Associates task. Nonetheless, these subjects estimated their own performance lower than other females and other males. This low self-confidence was characteristic of all subjects, regardless of group membership. Contrary to the current study's hypotheses, the Nontraditionals did not exhibit higher self-confidence than the traditional groups. But the groups did differ significantly in their attitudes and achievement motives, as discussed in the following section.

Groups' Attitudes and Motives

In the nonexperimental portion of the study, subjects' sex-role orientations were measured on the Personal Attributes Questionnaire. Their achievement motives were tapped by the Work and Family Orientation

Questionnaire. Additionally, their personal educational aspirations, their attitudes toward the relative importance of work versus marriage, and their opinion of what constitutes an ideal number of offspring were measured in separate questions. To learn whether the groups differed in these attitudes and motives, a one-way analysis of variance was used to examine the groups' scores on each measure. In instances where significant differences among the groups' scores were obtained, Duncan's New Multiple Range Test was used to determine which group differences contributed to the rejection of the study's null hypothesis regarding the measure; the significance was .05 or lower.

Sex-role Orientation. The means and standard deviations for the groups on the Personal Attributes Questionnaire are displayed in Table 9. On the M-F scale of the Personal Attributes Questionnaire (where a high score represents a masculine sex-role orientation and a low score represents a feminine sex-role orientation) the Nontraditional group's M-F mean score (17.31) was the highest obtained among the four groups, but was only significantly higher than the BA Homemaker's mean score (12.88); it was not higher than the Traditional's mean score (15.44); nor the MA Homemaker's mean score (15.32). Although these data are directionally in line with the hypothesis that Nontraditionals would exhibit a higher level of masculinity than the other groups, expressed by higher scores on the MF scale, the data only partially supported the prediction.

On the M scale, the Nontraditionals ($\underline{M}$ = 24.69) scored significantly higher than did either of the homemaker groups (MA Homemakers, $\underline{M}$ = 21.18, BA Homemakers, $\underline{M}$ = 20.13). Their score was also slightly, but

Table 9

Groups' Sex-Role Orientations

as Expressed on the Personal Attributes Questionnaire

	BA Homemakers	MA Homemakers	Traditionals	Nontraditionals
Personal Attributes Questionnaire:				
MF Scale				
M	12.88	15.31	15.44	17.31
SD	4.54	2.80	2.85	4.48
M Scale				
M	20.13	21.18	22.69	24.69
SD	5.34	3.73	3.03	3.07
F Scale				
M	22.31	22.31	24.13	20.94
SD	3.05	3.09	3.56	4.63

Duncan's New Multiple Range Test was used to determine which group differences were significantly different. Mean scores which differed at the .05 level or better are shown by an unconnected line.

not significantly, higher than the Traditionals' (M = 22.69). This finding constitutes partial support of the hypothesis that the Nontraditionals would express a significantly higher level of masculine sex-role orientation as expressed on the M scale of the Personal Attributes Questionnaire than the other groups.

On the F scale, the two groups employed outside the home, the Nontraditionals and the Traditionals, differed significantly from one another (Nontraditionals, M = 20.94; Traditionals, M = 24.13). Evidently, the Nontraditionals view themselves as less feminine in their sex-role orientation compared to the self-perceptions of the Traditionals. Neither group's score on the F scale, however, differed significantly from the homemaker groups' scores (MA Homemakers, M = 22.31; BA Homemakers, M = 22.31). These findings contradict the current study's prediction that the four groups would not differ in attitudes expressed on the F scale of the Personal Attributes Questionnaire.

Achievement motivation. As noted earlier, this measure consists of four dimensions predictive of real life achievement behavior: Mastery, Work, Competitiveness, and Personal Unconcern. The best formula for success (Spence & Helmreich, 1978) appears to be the attainment of high scores on Mastery and Work. An alternative formula appears to be a combination of a high score on Competitiveness and low scores on Mastery and Work.

In view of the possibility that group differences in achievement motivation (measured by the four scales) might be related to divergent career choices, the current study made several predictions: (a) the master's degree groups would exhibit higher levels of Mastery than the

BA Homemakers; (b) the Nontraditionals would demonstrate the highest level, and the homemaker groups the lowest levels of Competitiveness; (c) the Nontraditionals and the BA Homemakers would express the lowest, and the Traditionals would express the highest level of Personal Unconcern; (d) and the four groups would not differ in expressed levels of the Work motive.

A one-way analysis of variance was done for each of the scales. Whenever a significant finding was obtained, Duncan's New Multiple Range Test was utilized to determine which group differences contributed to a rejection of the null hypothesis. The groups' mean scores and standard deviations on the four scales are shown in Table 10.

As predicted, no significant differences in the groups' expressed levels of the Work scale were obtained.

In partial support of the hypotheses regarding the Competitiveness scale, the Nontraditionals demonstrated a significantly higher level of this motive (M = 14.44) than did the other master's degree groups (Traditionals, M = 10.63: MA Homemakers, M = 11.38). On the other hand, the Nontraditionals did not score significantly higher than the BA Homemaker group (M = 11.81). Thus the prediction that the homemaker groups would exhibit the lowest levels of Competitiveness was not confirmed by the data.

As hypothesized the Nontraditionals evinced a significantly higher level of Personal Unconcern (M = 12.75) than did the other masters' degree groups (Traditionals, M = 11.06; MA Homemakers, M = 10.25), but not a significantly higher level than the BA Homemakers (11.31).

Table 10

Groups' Achievement Motives as Expressed on the Work and Family Orientation Questionnaire

	BA Homemakers	MA Homemakers	Traditionals	Nontraditionals
Work and Family Orientation Questionnaire:				
Mastery				
M	16.63	19.94	19.94	21.50
SD	5.60	5.40	3.49	3.76
Work				
M	21.19	22.06	21.75	21.87
SD	2.04	1.44	2.08	3.44
Competition				
M	11.81	11.38	10.63	14.44
SD	4.78	2.80	4.63	3.72
Personal Unconcern				
M	11.31	10.25	11.06	12.75
SD	2.15	2.27	1.77	2.74

Duncan's New Multiple Range Test was used to determine which group differences were significantly different. Mean scores which differed at the .05 level or better are shown by an unconnected line.

Evidently the lawyers and businesswomen who participated in the present study were less concerned about others' potential negative reactions to personal achievements than are the teachers, social workers and master degree homemakers. This finding can be construed as partially supporting the hypothesis that Nontraditionals would exhibit elevated scores on this scale relative to those of the other groups.

The Nontraditionals' expressed level of the Mastery motive was the highest ($\underline{M}$ = 21.50), but as predicted, not significantly higher than the levels of the other master's degree groups (Traditionals, $\underline{M}$ = 19.94; MA Homemakers, $\underline{M}$ = 19.94). The Nontraditionals, but not the other master's degree groups, did express a significantly greater desire for Mastery than did the BA Homemakers ($\underline{M}$ = 16.63). It had been expected that all three master's degree groups would demonstrate higher levels of the Mastery motive than the BA Homemaker group.

Views Pertaining to Education, Work, and Number of Children. Three questions measured subjects' views regarding: the least amount of education that would personally satisfy them (from "graduate from high school", rated 0, to "advanced professional degree", rated 4); the relative importance of work versus marriage (from "marriage is the most important...", rated 0, to "marriage is unimportant...", rated 4); and the number of children they would ideally like to have (from "none', rated 0, to "four or more", rated 4). The mean scores and standard deviations are shown in Table 11.

Not surprisingly, the groups' educational aspirations (expressed on a rating scale where a score of 4.00 represented an advanced professional, and a score of 3.00 represented "graduate from college") differed

Table 11

Groups' Attitudes Toward:

Education for Self; Importance of Work vs. Marriage;

Ideal Number of Children*

	BA Homemakers	MA Homemakers	Traditionals	Nontraditionals
Least Amount Education Satisfies				
M	2.88	3.44	3.50	3.88
SD	.34	.73	.52	.34
Importance of Work				
M	.94	1.06	1.38	1.94
SD	1.24	.77	.62	.93
Number of Children Ideally Want				
M	2.50	2.44	2.06	1.69
SD	.82	.73	1.06	1.30

*Higher scores represent respectively: greater personal desire for education; greater emphasis on work relative to marriage: greater number of children ideally wanted.

Duncan's New Multiple Range Test was used to determine which group differences were significantly different. Mean scores which differed at the .05 level or better are shown by an unconnected line.

according to their actual educational achievements. All three masters[78] degree groups expressed a significantly greater desire for personal education (Nontraditionals, $\underline{M}$ = 3.88; Traditionals, $\underline{M}$ = 3.50; MA Homemakers, $\underline{M}$ = 3.44) than did the BA Homemakers ($\underline{M}$ = 2.88). However, the level of education necessary to satisfy the Nontraditionals was significantly higher than that for the other groups.

The two groups employed outside the home, the Nontraditionals and the Traditionals, did not differ significantly in their ratings of the relative importance of work versus marriage (Nontraditionals, $\underline{M}$ = 1.94; Traditionals, $\underline{M}$ = 1.38). The Nontraditionals' score attached approximately equal importance to marriage and work (a rating of 2 referred to "marriage and my work equally important"). All other groups' scores tended to attach greater importance to marriage relative to work. The Nontraditionals' mean score was significantly higher than the homemaker groups' (MA Homemakers, $\underline{M}$ = 1.06; BA Homemakers, $\underline{M}$ = .94). The homemakers' mean score reflected the statement "marriage is the most important thing; I will work primarily for financial reasons". Their feelings about the greater importance of marriage relative to work is in keeping with their career choice.

The Nontraditionals wanted significantly fewer children (ideally 1.69 children per subject) than did either homemaker group (ideally 2.44 children per subject in the MA Homemaker group and 2.50 children per subject in the BA Homemaker group). The Traditionals' view of the ideal number of children did not differ significantly (ideally 2.06 children per subject) from the other groups' expressed ideal numbers.

Discriminant Function Analysis. As reported in the preceding sections, group scores on each measure in the current study were analyzed to determine whether the scores differed significantly, and if so, which group's scores accounted for the difference. In addition, these group scores were submitted to a discriminant function analysis to provide insight on the types of dimensions, characterized by scores on more than one of the measures, which might significantly discriminate among the groups.

The discriminant function analysis which was performed utilized scores for 11 variables: actual self, Remote Associates; actual self, Memory task; Terman Vocabulary Test; Terman Analogies Test; Personal Attributes Questionnaire; M-F, M, and F scale scores; Work and Family Orientation Questionnaire Scales for Mastery, Work, Competitiveness, and Personal Unconcern.

Wilks' Criterion indicated that overall the groups differed significantly from one another, $F(33/148) = 1.84$, $p = .01$. Three discriminant functions were obtained; however, only the first function achieved statistical significance, $\chi^2(33) = 62$, $p < .01$. The first function was found to account for 55 per cent of the total discriminative power in the variables, as determined by Wilks' Lambda (shown in Table 12).

The second function which nearly reached significance, $\chi^2(20) = 30$, $p = .07$, was found to account for 29 per cent of the discriminative power in the variables. It, along with the first function, explains 84 per cent of the variance.

The standardized canonical discriminant function coefficients which best characterize Function I are shown in Table 13. These are: a

Table 12

Discriminating Power of Discriminant Functions

for the Groups:

Based on 11 Variables*

Discriminant Function	Eigenvalue	Per Cent of Variance	Wilks' Lambda	Chi Square	df	Significance
I	.765	54.91	.330	61.60	33	.002
II	.407	29.17	.582	30.05	20	.069
III	.222	15.92	.818	11.12	9	.268

*The eleven variables are: (1) Actual Self - Remote Associates; (2) Actual Self - Memory; (3) Terman Vocabulary; (4) Terman Analogies; (5) Personal Attributes Questionnaire - MF Scale; (6) Personal Attributes Questionnaire - M Scale; (7) Personal Attributes Questionnaire - F Scale; (8) Work and Family Orientation Questionnaire - Mastery; (9) Work and Family Orientation Questionnaire - Work; (10) Work and Family Orientation Questionnaire - Competition; (11) Work and Family Orientation Questionnaire - Personal Unconcern.

Table 13

Standardized Canonical Discriminant Function Coefficients:

Function I

Personal Attributes - M Scale	-.646
Terman - Analogies	-.595
Memory - Actual Self	.577
Work and Family Orientation Questionnaire - Personal Unconcern	-.435
Personal Attributes Questionnaire - MF Scale	.231
Remote Associates - Actual Self	-.192
Work and Family Orientation Questionnaire - Mastery	-.161
Work and Family Orientation Questionnaire - Work	.101
Terman - Vocabulary	.086
Work and Family Orientation Questionnaire - Competition	.079
Personal Attributes Questionnaire - F Scale	.022

less masculine sex-role orientation, as expressed by a negative coefficient for the Personal Attributes Questionnaire M Scale (coefficient, -.646); doing less well on the Terman Analogies Test (coefficient, -.595); performing well on the Memory Task (coefficient, .577); and heightened concern that others might dislike one for achievement (coefficient, -.435).

Table 14 exhibits the group centroids (means) on Function I. The BA Homemakers' centroid is highest (.845). Next highest is the MA Homemakers' centroid (.562), and then the Traditionals' (-.051). The lowest group centroid is the Nontraditionals' (-1.356).

Stated another way, the Nontraditionals could be characterized by: a more masculine sex-role orientation, superior performance on the Terman Analogies Test, inferior performance on the Memory task, and a lower level of concern that others might have a negative reaction to one's achievement.

Table 14

Canonical Discriminant Function I

Evaluated at Group Centroids (Means)

	Mean on Function I
BA Homemakers	.845
MA Homemakers	.562
Traditionals	- .051
Nontraditionals	-1.356

CHAPTER V

DISCUSSION

In this section of the paper, discussion focuses first on the results on the research on self-confidence and the implications of the findings for an understanding of adult female achievement. Then ways in which the groups differed in ability on the intelligence test, on the research tasks, in sex-role orientation, and in achievement motivation are examined.

Task Performance and Self-Confidence

This study examined nontraditional and traditional female achievers' self-confidence in own completed task performance on two research tasks, when no external feedback was given on performance. It had been predicted that Nontraditional female achievers (lawyers and businesswomen) would exhibit a higher level of self-confidence than traditional female achievers (master's degree social workers, teachers and homemakers; and bachelor's degree homemakers). The differences in self-confidence were expected to be most pronounced on the task experimentally introduced as male, and relative to estimates of male performance. Self-confidence was operationally defined as the estimated self-performance versus the estimated peer performance on a research task. Additionally, the Nontraditionals were expected to estimate other females' performance at a significantly higher level on the male task, relative to males.

In fact, no group differences in self-confidence, or perceptions of female performance were found. The Nontraditionals failed to exhibit

higher self-confidence, and like the Traditionals and homemakers groups, estimated self significantly lower than they estimated male or female performance. Thus, all respondents demonstrated a low level of self-confidence.

This lack of difference in self-confidence occurred in spite of the fact that the Nontraditional group actually performed significantly better than the other three groups on one of the two research tasks, the Remote Associates task. Moreover, they performed significantly better than the two homemaker groups, though not significantly better than the Traditionals, on the intelligence test, the Terman Concept Mastery Test. The Nontraditionals superior performance did not translate into a significantly higher perception of their performance, nor into higher self-confidence in their performance. The groups did not differ significantly in self- estimates or in self- relative to peer estimates (all groups estimated own performance lower than female and male performance on both male and female tasks), it seems unlikely that differences in self-confidence were critical in determining these women's divergent choices of achievement domains. On the other hand, it is possible that higher self-confidence may have characterized the Nontraditionals, relative to the Traditionals and homemaker groups, at that point in time when they made their career decision, but their self-confidence has declined over the years. In the latter case, societal biases against the recognition of female abilities and achievements may have eroded their self-confidence. For example, their self-confidence may have been lowered if they experienced difficulties in finding suitable positions,

and the literature reports that women typically were evaluated lower than males when being considered for traditional masculine positions, or demanding, challenging jobs (Diboye, Arvey, & Terpstra, 1977; Diboye, Fromkin, & Wiback, 1975; Muchinsky & Harris, 1977; Rosen & Jerdee, 1974a; Rosen & Jerdee 1974b). Their self-confidence may also have declined as the result of the societal tendency to devalue female performance (Bem & Bem, 1970; Deaux & Taynor, 1973; Goldberg, 1968; Pheterson, Kiesler & Goldberg, 1971), a devaluation expressed visibly in terms of lower pay or level of position offered (Fidell, 1970; Terborg & Ilgen, 1975) or in more subtle ways, such as male executives' lukewarm attitudes toward their female counterparts (Bowman, Wortney, & Greyser, 1965).

Although all four groups demonstrated low levels of self-confidence, it is possible that Traditionals' estimates of self-relative to male performance might have been significantly lower than Nontraditionals if the male stimulus person had been described as a boyfriend rather than the average male professional, if the competitive aspects of the situation had been heightened, and if subjects' estimates had been publicly made. Elsewhere it was found (Peplau, 1976) that traditional sex-role oriented college women performed better in noncompetitive situations or in team competition, but that nontraditional sex-role oriented college women performed better in individual competition with their dating partners. In such situations, traditional women may wish to avoid competitive behavior, which they may view as violating their traditional feminine role. In the nonresearch portion of this study, it was shown that Nontraditionals were characterized by greater competitiveness than the

Traditionals and homemaker groups (on the Competitiveness scale of the Work and Family Orientation Questionnaire). They were also characterized as more masculine relative to both homemaker groups on the M scale and relative to the BA homemakers on the M-F scale, and were characterized as less feminine relative to the Traditionals on the F scale. (These findings will be discussed in greater detail in the next section of this paper.)

The data indicated that all four groups in the current study exhibited low self-confidence relative to peers of both sexes and on both sex linked tasks. Aside from speculations on why the groups' self-confidence levels did not differ, the question remains, why did the women estimate their own performance lower than females as well as males, on both male and female tasks? A societal tendency to negatively value females and female traits would logically result in women holding a negative opinion of their own worth relative to the worth of males, but not relative to the worth of females. Nonetheless, these women underestimated their own performances relative to other females. The college women in Lenney's study (1976) had also estimated their self-performance significantly lower than female performance, both in an ability area which that author considered stereotypically feminine, and in an ability area she considered stereotypically masculine, (although it is not possible to know if the subjects shared those perceptions). It might be argued that, in the case of the current study, the women's liberation movement may have had an influence on these well educated female subjects' estimates of male and female performance, because both estimates were given for each task, and the women may have been careful to indicate

that women do not perform much differently than men. However, this explanation would not account for similar findings (Lenney, 1976), where the study's methodology asked a subject to give an estimate of self-performance and an estimate of only one (male, female, or sex unspecified) peers' performance on a task, a test situation less likely to invite subjects' comparison of male to female performance. Thus, instead of estimating female performance highly to be commensurate with male performance, it appears that the subjects estimated their own ability at a lower level than others of both sexes. This finding is consistent with evidence from past research which indicates that females generally underestimate their ability (Crandall, 1964), and have low expectancies of success at intellectual tasks, novel tasks, in classes, and in career areas (Battle, 1966; Deaux & Emswiller, 1973; Feather & Simon, 1973; Feldman-Summers, & Kiesler, 1974; Lenney, 1976; Montanelli & Hill, 1969; Rychlak & Eacker, 1962; Rychlak & Lerner, 1965; Stein, 1971). The literature also consistently reports that men's expectancies of success exceed women's, and moreover, that men generally overestimate their ability (Crandall, 1964). One plausible explanation for women's under-estimation of their ability is that societal devaluation of feminine traits and achievements has engendered a global sence of personal inadequacy in women.

Another possible explanation of these women's low self-confidence is that they were merely modest in recounting their achievements on the two research tasks. A modest presentation of personal accomplish-ments may have proven adaptive to relationships with romantic partners, or with envious peers. However, there would seem to be little reason

for the subjects to have been modest in an experiment conducted by a female experimenter, who had assured them that their responses would be strictly confidential, unless a modest manner had become a habitual, indiscriminant mode of relating personal achievements.

On the other hand, subjects were observed to find the tasks fairly difficult; and their queries concerning the adequacy of their performances belied the notion that they were simply being modest in underestimating their performances. Perhaps the tasks created anxiety over personal adequacy, and resulted in generally lower self-esteem. But the subjects were not self-deprecating in the postexperimental interview. In fact, some reported having become more satisfied with their general talents, personalities, and attributes in the years since college graduation. Such satisfaction would seem inconsistent with the present finding and the literature on females' low self-confidence, until one considers that real-life offers the women external feedback on their competence in specific areas. But in novel situations, where external feedback on their performances is lacking, women may be less sure of their competency. Clearly, women can achieve in spite of their tendency to underestimate their performances on tasks such as those administered in the current study. The tendency to evaluate their own performances less favorably than others has not prevented these women from attaining advanced degrees, and from pursuing careers in their chosen areas.

Finally, it might be argued that these female achievers, three-fourths of whom had attained graduate degrees may have been motivated to some extent by fear of failure. Being concerned that they might not perform as well as others, they may have striven to perform well.

Performances on the Research Tasks and Other Measures

Group differences in actual performance on the two research tasks and, also, in response to other measures, proved more useful in discriminating among the groups than did self-confidence. The current study had presumed that the groups would exhibit similar ability levels, but that any differences obtained would demonstrate superior performance by the three master's degree groups. Instead, the Nontraditionals scored significantly higher than the other three groups on one task, the Remote Associates task, and significantly higher than the two homemaker groups on the Terman Concept Mastery Test.

Perhaps the types of occupations in which these Nontraditional respondents were engaged (law and business) demand a high level of verbal and analogical skill as a prerequisite for admittance. On the other hand, the reasons why the homemakers, particularly the MA Homemakers whose educational attainments were equivalent to the other master's degree groups, performed least well on the intelligence test is not clear. One possibility is that they have experienced a decline in vocabulary and analogical skills through lack of involvement in adult populated situations. Another possibility is that they self-selected out of the economic marketplace because their skills were not commensurate with the skills of those against whom they were competing. Or perhaps their traditional attitudes suppress their inclinations toward intellectual pursuits. In other research (Peplau, 1976), women with liberal sex-role attitudes were found to have higher SAT verbal scores and to rate themselves as more "intelligent" than did women with traditional sex-role attitudes, even though the two groups did not differ in college

grades. After college, the traditional women may not remain involved in activities which are inconsistent with their self-concept, i.e., intellectual tasks. In fact, the finding that the BA Homemakers tended to outperform the other groups on the Memory task, whereas the Nontraditionals tended to score lower than the other groups, suggests that the type of thinking adaptive to homemaking may not be abstract, analogical thinking, but, rather, the ability to remember heterogeneous bits of unrelated information. In performing her job as a homemaker, a woman may need to recall bits of information such as "the car keys are on the left hand side of the dresser drawer", and "the church supper is at seven o'clock Tuesday evening and everyone is asked to bring coupons for the file." These thoughts do not require the woman to consider relationships among ideas.

Group differences were also obtained on the measures of sex-role orientation; but the groups had been hypothesized to differ on this measure. The data provided some evidence in support of the hypothesis that the Nontraditionals would be more masculine than the other groups. They scored significantly higher than both homemaker groups on the M scale of the Personal Attributes Questionnaire, and higher than the BA Homemakers on the masculine end of the M-F scale. They also scored significantly lower than the Traditionals on the F scale. The masculine scale items include the traits of aggressiveness and competitiveness. With respect to the latter trait, the Nontraditionals' scores on the Competitiveness scale of the Work and Family Orientation Questionnaire were significantly higher than the two traditional master's degree groups', but were not significantly higher than the BA Homemakers'. Not

only did the Nontraditionals characterize themselves as competitive on the paper-and-pencil measure, they also impressed the experimenter as being determined, competitive individuals in the postexperimental interview. Moreover, other research (Peplau, 1976) found that nontraditional women performed best in individual competition, whereas traditional women performed best in noncompetitive situations or in team competition. The less agentic attitudes expressed by the traditional women in the present study may be why these women are not competitive. Traditional women may either feel that it would be unfeminine to be very competitive, or may feel that others would not like them if they were too competitive, or both. In fact, the two master's degree traditional groups expressed significantly greater concern that others might dislike them for their attainments, than did the Nontraditionals (although not significantly greater concern than the BA Homemakers) on the Personal Unconcern scale of the Work and Family Orientation Questionnaire.

The data thus provided substantiation for the expectation that the Nontraditionals would score significantly higher than the Traditionals on the Competitiveness and Personal Unconcern scales of the Work and Family Orientation Questionnaire. The data did not support the expectation that BA Homemakers, like the Traditionals and MA Homemakers, would score significantly lower than the Nontraditionals on the Competitiveness scale. Perhaps, as others have suggested (Spence & Helmreich, 1978), the most traditional women have difficulty believing that their attainments are capable of arousing envy; nonetheless, they appear somewhat more competitive than the traditional women with master's degrees.

The finding that the Nontraditionals scored significantly higher on the Personal Unconcern scale than did the Traditionals and MA Homemakers concurs with evidence that traditional sex-role women exhibited more fear of success than nontraditional sex-role women (Alper, 1974; O'Leary & Hammack, 1975; Spence & Helmreich, 1978); and with evidence that among women with traditional sex-role attitudes, but not those with liberal attitudes, fear of success may affect achievement performance (Peplau, 1976). It may be that the societal view of what constitutes appropriate female achievement has promulgated fear of success in women. Thus, only women who adhere to the traditional, stereotypical view of the female sex-role may be prone to fear of success. As societal definitions of what constitutes appropriate female achievement behaviors undergoes transformations, allowing greater latitude in types of female achievement behaviors, fewer women may be affected by fear of success.

Moreover, fear of success, does not seem to have prevented the traditional women in the present study from considerable real-life achievement. They have merely expressed their achievement motivation in traditionally female helping professions, teaching and social work.

With respect to scores on the Mastery scale of the Work and Family Orientation Questionnaire, the three master's degree groups, the Nontraditionals, the Traditionals, and the MA Homemakers, were not expected to differ; this expectation was confirmed by the data. Only the BA Homemakers scored significantly lower than the Nontraditionals. Additionally, as had been predicted, the four groups did not differ on the Work scale of the Work and Family Orientation Questionnaire. Because the groups' levels on the Mastery and Work motives are fairly similar, they provide little

insight into potential reasons why the groups have chosen divergent modes for expression of their achievement motives. Scores on Mastery and Work have been found to be positively related to achievement (Spence & Helmreich, 1978); therefore, those persons expressing similar levels of the motives might be predicted to attain success to similar degrees. The three groups with master's degrees had attained the same levels of academic achievement, and expressed similar levels of the achievement motives, Mastery and Work. On the other hand, some evidence has accumulated that a high level of Competitiveness, in combination with high levels of Mastery and Work, may suppress achievement (Spence & Helmreich, 1978), but that high scores on Competitiveness without concommitant high scores on the other scales may represent an alternate achievement style. If so, one might surmise that the Nontraditionals, who are high on all three scales, might not achieve to the same degree as the Traditionals and homemaker groups. But this does not appear to be the case.

Comparing Subjects and Scientists on Sex-Role Orientation and Achievement Motives

Data on male and female scientists' sex-role orientations and achievement motives (Spence & Helmreich, 1978) provide the opportunity for some comparisons with findings from the present study. The educational achievements of the scientists exceeded those of the current study's adult female achievers, as the scientists held doctorates whereas the female achievers held only master's or bachelor's degrees.

On the M and M-F scales of the Personal Attributes Questionnaire, the Nontraditionals in the current study scored as high or higher on the masculine sex-role orientation as did the male scientists, and higher

than the female scientists. The Traditionals' masculine scores were nearly the same as the female scientists. On the F scale, the Non-traditionals again scored similarly to the male scientists, but lower than the female scientists; the Traditionals scored slightly higher than the female scientists. (These data are shown in Table II in the Appendix A.)

This pattern of results is intuitively appealing because it portrays the lawyers and businesswomen as masculine, with attributes which seem compatible with the conceptualization of the business world as a masculine arena where traits such as aggressiveness, independence, dominance, competitiveness, emotional insensitivity, etc. promote success. Today's business climate is conceptually inconsistent with a feminine sex-role orientation.

Spence and Helmreich (1978) had indicated the M-F Scale scores showed the strongest relationship to the criterion measure of success for scientists, scientific citations to published works. Thus, they concluded that aggressiveness and lack of emotional vulnerability associated with M-F were adaptive for a successful scientific career. They also found M Scale scores were positively associated with attainment. The F Scale scores were negatively associated with success.

Because the Nontraditionals exhibited higher levels of masculinity on both the M-F and the M Scales than did the female scientists, and if masculinity is adaptive to success, it might be surmised that the Nontraditionals would attain success to a greater degree than would the female scientists. They might, on the basis of this logic, also attain success to an equivalent or greater degree than the male scientists.

A comparison of the scientists with the homemakers in the present research, reveals that homemakers scored lower than female scientists on both the F Scale and the M Scale. Further, the BA Homemakers displayed lower M-F Scale scores, although MA Homemakers scores were very slightly higher, than the female scientists. Predictably, the homemakers' masculine scale scores were lower and their feminine scale scores were higher than those of the male scientists. In general, the homemakers do not present themselves in as agentic terms as do the scientists.

In contrasting the achievement scores of the adult female achievers in the present study to the scientists in previous research (Spence & Helmreich, 1978), the female scientists had exhibited the highest mean score on Mastery, followed by the Nontraditionals and male scientists, then the Traditionals and MA Homemakers, and finally, the BA Homemakers. Apparently, the female scientists' high need for Mastery compensates for their less agentic manner in their achievement motivation. (These data are shown in Table III in Appendix A.)

Few differences are apparent in the mean scores on the Work scale for the four groups of adult female achievers and the two groups of scientists. One group, the Nontraditionals, emerged as having the strongest competitive achievement motivation, as expressed on the Competition scale. The Traditionals and the female scientists appear to be the least competitive.

Not only did the Nontraditionals portray themselves as extremely competitive they also appear somewhat less concerned about what others' may think of their success, than the other samples. These results concur with Spence and Helmreich's (1978) report of a significant and

positive correlation between Personal Unconcern and Competitiveness, for samples of high school, college students, scientists, but not a sample of female athletes.

Attitudes Toward Education, Work, and Children.

With regard to personal educational aspirations, the Nontraditionals expressed a desire for an advanced, professional degree; the Traditionals and MA Homemakers expressed the desire for education above a college degree but below an advanced degree; and the BA Homemakers expressed the desire for a college degree. Thus, the groups' expressed educational aspirations reflect their actual educational achievements. This raises the possibility that subjects' responses to the question may merely be descriptive and not reflective of what their aspirations might have been. However, a study was conducted among traditional and nontraditional women still in college (Peplau, 1976) reported that those with liberal attitudes held higher educational and career aspirations. This suggests that the Nontraditionals in the present study may have differed significantly from the other groups prior to making their career decisions.

The Nontraditionals attached equal importance to work relative to marriage, whereas the other groups tended to attach greater importance to marriage. The differences between the homemaker groups and the Nontraditionals on this issue were significant; but the difference between the Traditionals and the Nontraditionals was not. It is plausible that homemakers regard marriage as more important than work because they are not working outside the home and are dependent upon their husband's work to generate funds. On the other hand, the fact that the Traditionals tend to view marriage as more important than work suggests that traditional

sex-role attitudes may account for the differences.

The Nontraditionals were the only women who stated that the ideal number of children they would like to have was under 2, (1.69); this number was significantly lower than the number of children which the homemakers wanted, about 2.50, but not significantly lower than traditionals who wanted 2.06. The desire for fewer children appears compatible with their attitudes that their work is as important as their marriages.

What Characterizes the Four Groups of Adult Female Achievers?

Scores on the measures used in the current study, contributed to a dimension which significantly discriminated among the groups. The dimension appears to represent a traditional feminine orientation. The highest mean score on the dimension was the BA Homemakers', the next highest, the MA Homemakers', then, the Traditionals'. The Nontraditionals exhibited the lowest mean score on the dimension. Scoring high on the dimension primarily encompasses the following attitudes and behaviors: a less masculine sex-role orientation (on the M scale of the Personal Attributes Questionnaire); a lower performance on the Terman Analogies test; a better performance on the Memory task; and heightened concern that others might dislike one for one's attainments. The agentic characteristics represented by the M scale appear to have accounted for another trait which is an excellent discriminator between the nontraditional and the traditional groups who had attained master's degrees, Competitiveness.

On the basis of the evidence in the current study, it does not appear that differences in self-confidence determine females' divergent

modes of achievement. All of the adult female achievers lacked self-confidence in their completed achievement performances on the research tasks, whether the tasks were male or female. Unless the groups differed in their self-confidence at the time of their career decision, which for most was 10 to 20 years prior to the current study, and have since had their self-confidence eroded, bolstering self-confidence in women might have little impact on female participation in nontraditional career domains. There seems to be no necessity to institute therapeutic programs designed to improve women's self-confidence in response to particular tasks and challenges, as Lenney (1976) had pondered. Women may come to be increasingly represented in nontraditional occupations as the societal definition of what constitutes feminine behavior and achievement is broadened.

Generalizability of Data

The findings from the current study are limited in scope to a few occupational groups--lawyers, businesswomen, social workers, teachers, and homemakers--and cannot be considered indicative of the abilities, attitudes, and motives of other traditional and nontraditional female achievers. Moreover, because marital status, age, and educational attainment were criteria in sample selection, these adult women are not representative of nontraditional and traditional female populations as a whole. For example, all participants in the present study were between 30 and 40 years of age because it was believed they would have made a serious commitment to a specific career area by that age. As a result of their age, they may hold either more or less traditional attitudes than their younger counterparts. If the adult women in the current

research were less influenced than younger women by the women's movement, they may hold more traditional attitudes. On the other hand, it is possible that the selection process for the nontraditional career areas has undergone changes in the last decade, with the result that more women with traditional outlooks are being represented in nontraditional career areas.

In spite of limited generalizability, the current findings enrich the literature by providing data on adult women, rather than female college students. These data indicate that nontraditional and traditional women differ in important ways. They also share characteristics with their female college counterparts, e.g., nontraditionals exhibited higher verbal ability. It is important for future research to examine whether such adult nontraditional and traditional women differ from their male counterparts. Such information would yield insights concerning the low self-confidence exhibited by the present respondents, i.e. do their male counterparts also express low self-confidence, or does the lack of self-confidence characterize only women? Past literature had indicated that women in general exhibit lower self-confidence than do men; but no data have been reported for the samples studied here.

Considerations for Future Research

The current study investigated women's self-confidence in their completed task performances when no external feedback was given on the correctness of these performances. Although the women's estimates of own performance on the two research tasks were lower than their actual performances, their estimates were relatively accurate. Therefore, research tasks selected for use in future research of this type might be

lengthier. Longer tasks would make it more difficult for subjects to discern how well they had actually performed.

Consideration might also be given to obtaining expectancies of success on research tasks rather than estimates of completed task performance, Lenney's (1977) argument notwithstanding. She had reasoned that a person's evaluation of completed task performance, in the absence of external feedback, may be an important determinant in whether or not they persist in certain achievement activities. However, it can also be argued that low expectancies of success can prevent a person from ever engaging in certain achievement activities. As Atkinson's (1958) theory suggested, the tendency to achieve success may be comprised of achievement motivation, the perceived probability of success, and the incentive value of success. Measuring expectancies of success would fit this theoretical framework better than obtaining estimates of completed task performance, and would also make the selection of the type of research tasks less critical. The theory's formula for achievement also necessitates obtaining a measure of subjects' impressions of the importance of success on tasks. Future research might also manipulate task sex linkage in a more precise way. Rather than informing respondents that men generally have performed better than women on a specific research task, instructions could state that men, on the average, answer 90 per cent of the task's items correctly.

Finally, future research on self-confidence might utilize alternative operational definitions of self-confidence. The present study followed Lenney's example by considering over- or under-estimation of own performance relative to estimation of peer performance as evidence of high

or low self-confidence. However, it is possible that this method of measuring self-confidence is actually measuring some other phenomenom; if so, the Nontraditionals might have been more self-confident than the Traditional and homemaker groups, but the methodology was not able to discern the difference.

SUMMARY

The literature indicates women's self-confidence is lower and influenced more by situational characteristics than men's, an internal disposition which may inhibit female involvement in nontraditional or male-dominated careers (Lenney, 1976). The present experiment explored traditional and nontraditional women's self-confidence in own performance on two tasks, sex-linked by experimental instructions, when a social comparison was salient. It was anticipated that nontraditionals exhibit higher self-confidence, particularly on "male" tasks, than traditionals. Subjects were 64 women, age 30-40, in one group of Nontraditionals (lawyers, MBAs) and three groups of Traditionals (a) master's degree social workers and teachers; (b) master's degree homemakers; (c) bachelor's degree homemakers. Self-confidence was operationally defined as the extent to which a subject over- or under-estimated self--relative to other's performance. There were two tasks, a measure of verbal creativity and a memory task. Subjects estimated self, male, and female performance in terms of the per cent of task items answered correctly. Within a group, one of two tasks was presented as male and the other as female to half the subjects; a reverse sex-linked description was given to the other half. An intelligence test was administered as a check because significant differences in ability might account for differences in self-confidence.

Nontraditionals performed significantly better on the Terman than did two homemaker groups but not significantly better than master's degree teachers and social workers. However, their superior performance did

not translate into higher self-confidence. All groups estimated self significantly lower than peer performances on the tasks. They did not estimate female lower than male performance.

The groups did differ in their responses on other measures. Nontraditionals tended to be more competitive, and less concerned about others' opinions of their success than their master's degree traditional counterparts, and expressed a higher need for mastery than the BA Homemakers. They also tended to characterize themselves as more masculine/less feminine on the sex-role orientation scales. Their level of verbal creativity (on the Remote Associates) was significantly higher but they tended to perform less well on the Memory task. Additionally, the Nontraditionals desired significantly more education than others, and wanted fewer children than homemakers. They were the only group to rate work as important as marriage. Thus, rather than low self-confidence, adherence or divergence from stereotypic feminine attitudes and motivational factors appears to mediate women's career choices.

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APPENDIX A

TABLE I

Pearson Correlation Coefficients

for Actual with Estimated

Performance on Research Tasks:

the Remote Associates and the Memory Tasks

	Remote Associates Task	Memory Task
Groups:		
BA Homemakers	.86	.93
MA Homemakers	.86	.53
Traditionals	.60	.69
Nontraditionals	.35	.87
Total Sample	.72	.76

TABLE 11

Groups' and Scientists' Sex-Role Orientations

as Expressed on the Personal Attributes Questionnaire

	Results of the Present Study				Results of Spence and Helmreich (1978) Study	
	BA Homemakers	MA Homemakers	Traditionals	Nontraditionals	Male Scientists	Female Scientists
N=	(16)	(16)	(16)	(16)	(143)	(18)
Personal Attributes Questionnaire:						
MF Scale						
M	12.88	15.31	15.44	17.31	17.23	15.00
SD	4.54	2.80	2.85	4.48	4.30	4.51
M Scale						
M	20.13	21.18	22.69	24.69	23.23	22.00
SD	5.34	3.73	3.03	3.07	4.75	4.97
F Scale						
M	22.31	22.31	24.13	20.94	20.84	23.38
SD	3.05	3.09	3.56	4.63	4.29	3.56

Duncan's New Multiple Range Test was used to determine which group differences were significantly different. Mean scores which differed at the .05 level or better are shown by an unconnected line.

Groups' and Scientists' Achievement Motives as Expressed on the

Work and Family Orientation Questionnaire

	Results of the Present Study				Results of Helmreich and Spence (1978) Study	
	BA Homemakers	MA Homemakers	Traditionals	Nontraditionals	Male Scientists	Female Scientists
N=	(16)	(16)	(16)	(16)	(125)	(25)
Work and Family Orientation Questionnaire:						
Mastery						
M	16.63	19.94	19.94	21.50	21.27	24.24
SD	5.60	5.40	3.49	3.76	-	-
Work						
M	21.19	22.06	21.75	21.87	20.73	22.12
SD	2.04	1.44	2.08	3.44	-	-
Competition						
M	11.81	11.38	10.63	14.44	11.98	10.76
SD	4.78	2.80	4.63	3.72	—	—
Personal Unconcern						
M	11.31	10.25	11.06	12.75	11.46	11.12
SD	2.15	2.27	1.77	2.74	-	-

Duncan's New Multiple Range Test was used to determine which group differences were significantly different. Mean scores which differed at the .05 level or better are shown by an unconnected line.

APPENDIX B

Work and Family Orientation Questionnaire

The following statements describe reactions to conditions of work and challenging situations. For each item, indicate how much you agree or disagree with the statements, as it refers to yourself, by choosing the appropriate letter on the scale, A, B, C, D, or E.

1. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

2. It is important for me to do my work as well as I can even if it isn't popular with my co-workers.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

3. I enjoy working in situations involving competition with others.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

4. When a group I belong to plans an activity, I would rather direct it myself than just help out and have someone else organize it.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

5. I feel that good relations with my fellow workers are more important than performance on a task.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

6. I would rather learn easy fun games than difficult tough games.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

7. It is important to me to perform better than others on a task.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

8. I worry because my success may cause others to dislike me.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

9. I find satisfaction in working as well as I can.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

10. If I am not good at something I would rather keep struggling to master it than move on to something I may be good at.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

11. I avoid discussing my accomplishments because other people might be jealous.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

12. Once I undertake a task, I persist.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

13. I prefer to work in situations that require a high level of skill.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

14. There is satisfaction in a job well done.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

15. I feel that winning is important in both work and games.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

16. I more often attempt tasks that I am not sure I can do than tasks that I believe I can do.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

17. I sometimes work at less than my best because I feel that others may resent me for performing well.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

18. I find satisfaction in exceeding my previous performance even if I don't outperform others.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

19. I like to work hard.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

20. Part of my enjoyment in doing things is improving my past performance.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

21. It annoys me when other people perform better than I do.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

22. I like to be busy all the time.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

23. I try harder when I'm in competition with other people.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

II.

24. It is important for me to get a job in which there is opportunity for promotion and advancement.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

25. Assuming that I get (or am) married, I would like my husband or my wife to have a job or career that pays well.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

26. It is important to my future satisfaction in life to have a job or career that pays well.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

27. Assuming that I get (or am) married, I would like my husband or my wife to have a job or career that brings recognition and prestige from others.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

28. It is important to me to have a job or career that will bring me prestige and recognition from others.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

29. Assuming that I get (or am) married, it wouldn't bother me if my spouse had a better job than I do.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

30. What is the least amount of education that will satisfy you?

a. graduate from high school
b. some special vocational training beyond high school (electronics, auto mechanics, nursing, secretarial school, etc.)
c. some college
d. graduate from college
e. advanced professional degree (Ph.D., MD, law degree, etc.)

31. How important do you think marriage will be to your satisfaction in life, in comparison to a job?

a. the most important thing; I will work primarily for financial reasons.
b. marriage relatively more important than my work.
c. marriage and my work equally important.
d. marriage relatively less important than my work.
e. marriage is unimportant; I would be reasonably content if I did not marry.

32. How many children would you ideally like to have?

a. 0
b. 1
c. 2
d. 3
e. 4 or more

Directions For Research Tasks

Remote Associates:

In this test you are presented with three words and are asked to find a fourth word that goes with the other three words in some way. For example, consider the following three words:

COOKIES SIXTEEN HEART _____

The fourth word is SWEET: cookies are sweet, sweet sixteen and sweetheart. So, you should write SWEET in the blank.

For another example:

POKE GO MOLASSES _____

Here the way in which the three words go together is SLOW: slowpoke, go slow, slow as molasses. So, you should write SLOW in the blank.

As you can see, the fourth word may be related to the three others for various reasons. In the test that follows there will be 30 groups of three words with which a fourth word goes together in some way. Some of the items are quite difficult, so if you have trouble with any one item go on and come back to the item later.

You will have 15 minutes for the test.

Memory:

In this test you will be presented with a board on which some photographs of objects appear. Under each photograph is a number. You will be asked to remember both the object shown in the photograph and the number which appeared with it.

You will have 2 minutes to look at the board with the photographs and associated numbers. Then you will have as much time as you wish to recall the pictured objects and their numbers.

Scoring Sheet For Performance Estimates

on Research Tasks

TASK:

Remote Associates: _____

Memory: _____

Order given:

First: _____

Second: _____

Task sex linkage, that is, presentation of a task as one where "men/women generally seem to be doing well":

Men: _____

Women: _____

Q1. "In general, what per cent of the test items do you think you answered correctly?"

Q2. "In general, what per cent of the test items do you think the average male professional answered correctly?"

Q3. "In general, what per cent of the test items do you think the average female professional answered correctly?"

Estimated per cent correct for:

Self _____

Male professional _____

Female professional _____

Demographic Screening Questionnaire

Directions: Just to provide some background information, please answer the following questions:

1. How old are you?

18-24	_____	TERMINATE
25-29	_____	
30-40	_____	
41 +	_____	TERMINATE

2. Are you:

Single	_____
Married	_____
Separated	_____
Divorced	_____
Widowed	_____
Living with someone	_____

3. What was the last year of schooling completed by yourself:

High school degree or less	_____	TERMINATE
Some college	_____	
Bachelor's degree	_____	
Master's degree	_____	
Law degree (J.D. or LLB.)	_____	CHECK QUOTA
PhD.	_____	TERMINATE
M.D.	_____	TERMINATE

4a. Are you currently enrolled in courses leading to another degree:

Yes _____ (Ask 4b) No____ (Skip to Q5a)

4b. What degree is that?_____

(IF SEEKING PhD. or M.D. DEGREE, TERMINATE)

5a. Do you intend to enroll in courses leading to another degree?

Yes _____ (Ask Q5b) No ____(Skip to Q6)

5b. What degree is that?_____

6a. Are you currently employed outside the home?

Yes _____(Ask Q6b then skip to Q7) No _____ (Ask Q6c) CHECK QUOTAS

6b. What is your occupation? That is, what is the title of your job and a description of the type of work you do?

_____

_____

_____

_____

_____

6c. Do you intend to seek employment outside the home?

Yes _____ (Ask Q6d) No._____ (Skip to Q7)
CHECK QUOTAS

6d. What type of work do you expect to do?

_____

_____

_____

7. What type of graduate degree do you hold:

Masters of Education	____	
Masters of Social Work	____	CHECK QUOTA FOR GROUP 3
Masters of Business	____	
Law (LLB. or J.D.)	____	CHECK QUOTA FOR GROUP 4
Other (HAVE RESPONDENT SPECIFY)	____	CHECK QUOTA FOR GROUP 2

_____

8. If you are married, what was the last year of schooling completed by your spouse?

High school degree or less	____
Some college	____
Bachelor's degree	____
Master's degree	____
PhD.	____
Law (J.D. or LLB.)	____
M.D.	____
Technical/Trades after high school	____
Not applicable	____

9a. How many children are there living at home with you:

9b. How many of these children are preschool age, that is, are not yet old enough to be in school:

	Q9a	Q9b
None	____	____
One	____	____
Two	____	____
Three	____	____
Four	____	____
Five or more	____	____

APPROVAL SHEET

The dissertation submitted by Myril Bruns-Hillman has been read and approved by the following committee:

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 13, 1979
Date

Director's Signature